THE

CYCLOPÆDIA;

or,

Universal Dictionary

of

ARTS, SCIENCES, AND LITERATURE.

VOL. XXXVI.
THE

CYCLOPÆDIA;

OR,

UNIVERSAL DICTIONARY

OF

Arts, Sciences, and Literature.

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TOL

Tolerium, in Ancient Geography, a town of Italy, in ancient Latium, and one of those which were taken by Coriolanus, according to Plutarch and Steph. Byz.

Tolescapatam, in Geography, a town of Hindoostan, in the Carnatic; 28 miles S.E. of Tanjore.

Toletum, Toledo, in Ancient Geography, a town of Hifpania Citerior, belonging to the Carpentani, to the S.W. upon the Tagus. According to Silva and other Spanish historians, this city was founded by a considerable body of Jews, who, on their emancipation from captivity, 540 years before the vulgar era, established themselves here, and called the place Toledoth, or Toledath, that is, mother of the people. However this be, Toletum became in process of time a Roman colony. Cæfar made it a place of arms, and Augustus rendered it the principal seat of justice for the provinces of Spain in his department. Many ancient remains, such as an aqueduct, a road, &c. have been discovered at Toledo; which see.

Toletus, (Dr. Toledo,) Francis, cardinal, in Biography, was born at Corduba in 1532, and studied at Salamanca, where he took the degree of doctor in theology, and was made professor of philosophy. At the age of twenty-seven years, he entered the society of Jesuits, and in the following year he went to Rome, and read lectures on Aristotle and theology. He acquired great popularity as a preacher, insomuch that, when he was compared with other preachers, it was said “Toledo teaches, Panigarola preaches, and Lupo moves.” He was employed by several popes in various legations, and in 1593 Clement VIII. invested him with the purple, being the first Jesuit who obtained that dignity. He died at Rome in 1596, at the age of fifty-four. Toledo was one of those theologians who were employed by Sixtus V. in revising his bible. Of his various works, we shall only mention his “Sum of Caffes of Conscience, or Instructions to Priests, in eight Books,” justly chargeable with the pernicious maxims of the fee of Rome concerning the forfeiture of the allegiance of their subjects by excommunicated princes, and with the dangerous doctrines of equivocations and mental reservations. Dupin. Nouv. Dict. Hist.

Tolfa, in Geography, a town of the Popedon, in the Patrimonio, in the curious of which are mines of alum and iron, with warm baths, and quarries of alabaster and lapis lazuli, about four miles from the sea-coast; 25 miles N.W. of Rome.

Tolhar, a town of Hindoostan, in Lahore; 18 miles S. of Rotas.

Tolhuys, a town of Guelderland, on the Rhine; where the French passed that river in the year 1672, and the Hanoverians in 1758; 6 miles W.S.W. of Emmerick.

Toli, a town of European Turkey, in Macedonia; 85 miles N.W. of Saloniki.

Tolitzin, a town of Russia, in the government of Mogilev; 70 miles N. of Mogilev.

Tolkemit, a town of Prussia, in the province of Ermeland, on the Frisch Haff; 12 miles N.E. of Elbing. N. lat. 54° 18'. E. long. 19° 33'.

Toll, Telonium, a Saxon word, though derived originally from the Latin tollere, to take away, or rather the Greek τοιλος, tribute, tax. It has two acceptations, denoting, first, a liberty to buy and sell within the bounds of a manor, and, secondly, toll is also used for a tax or custom paid for passage, or for vending goods in a market, fair, or the like. This tax originated in the expense attending the construction and preservation of highways, bridges, and canals: and it is evidently just that a traveller, and especially a merchant, who derives advantage from a bridge, a canal, or a causeway,
TOL

caufeway, in his own paffage, and in more commodiously
conveying his merchandise, should contribute to the expence
of these useful eftablifhments, by a moderate contribution;
and if the state thinks proper to eempt the citizens from
paying it, it is under no obligation to gratify strangers in
this particular. But alaw fo juft in its origin, frequently
degenerates into a great abuse. There are countries where
no care is taken of the highways, and where they neverthe-
less require considerable tolls.

Some records make mention of toll thoro, or thorough toll,
which is money paid for passage in or through some high-
ways, or over ferries, bridges, &c. Toll values, for pafling or
driving cattle over a private man's ground. And toll-turn, or
turn-toll, which is paid at the return of beasts from fairs and markets, though they are not fold.

By the ancient laws, the buyers of corn and cattle in
fairs or markets were made to pay toll to the lord of the
market, in tellimony of the contract there lawfully made
in open market, because privy contracts were held un-
kwful.

Some interpret toll a liberty, as well to take as to be free
from toll; for that they who are infeoffed with toll are
confum-free.

This freedom from toll the city of Coventry boasts an
ancient charter, granted them by Leofrick, or Luriche,
earl of the Mercians, in Edward the Confessor's time, who,
at the importance of Godceva, his lady, granted this free-
dom to the city.

Toll-Bar, or Stop, on a canal, is a beam for stopping boats
at the toll-houses.

Toll-Houses, habitations confructed on the banks of a
canal or navigation for the toll-clerks.

TOLLAND, in Geography, a county of America, in
the state of Connecticut, divided into ten townships, and
containing 13,779 inhabitants.—Alfo, a town of the same
state and county; 65 miles W.S.W. of Boston, containing
1610 inhabitants. N. lat. 41° 58'. W. long. 72° 26'.

TOLLEIT, a town of Austria; 6 miles S.W. of Ef-
ferding.

TOLLEN, a lake of Anterior Pomerania, near Trepto.
TOLLENON, among the Romans, a warlike machine,
formed in this manner: one beam was fixed very deep in
the earth, and on the top of it another more than half as
long, and moveable upon a centre. On one end of this
crofs-beam was placed a covering of hurdles or planks,
within which a few soldiers were put, and, by pulling
down the other end with ropes, these were raised above the
walls of a befieged town.

Tollon was alfo an engine for raising water out of a
draw-well.

TOLLERSHAM, in Geography, a town of Austria;
4 miles N.E. of Zwettl.

TOLLES, or Toles, names given by some to the
tofts, and by others to the glandular abfeffes sometimes
affecting the limbs.

TOLLESIO, in Geography, a town of Sweden; in West
Gothland; 23 miles E.N.E. of Gothenburg.

TOLLET, THOMAS, in Biography, a composer for,
and a performer on, the common flute, when it was in its
highest favour in England. He published likewise direc-
tions for playing on the French flageollet. And, in con-
junction with John Linton, whose instrument was the flute,
one of king William and queen Mary's band, published a
work entitled "A Confort of Muftick in Three Parts."

A ground comphoty of Tollet, was much in favour dur-
ing our own time.

TOLLING a Bell. See Ring.

TOLLIUS, CORNELIUS, in Biography, a man of learn-
ing in the 17th century, was born at Utrecht, and became
secretary to Isaac Vollius, by whom he was difmiffed under
a charge of unfaithfulness. He was afterwards profeflor
of eloquence and Greek at Harderwyk, and secretary to
the curators of that university. His works were numerous:
and the time of his death is unknown.

TOLLIUS, JAMES, M.D., brother of the preceding, profef-
lor of eloquence and Greek in the university of Duiiburg, was
the author of many learned works, and made several journies
for literary purpoifes, an account of which was given in a
pofthumous work, entitled "Epiftola Itinerariz," published
with notes, by Henninvs at Amfterdam. A work of
somewhat fimilar title, viz. "Inflinigia Itinerarii Italizz,"
was published by himfelf at Utrecht in 1669, and contained
the writings of some ancient ecclesiatical authors in Greek
and Latin, with the editor's notes. He had also previously
published an edition of "Anufius, cum Notis Variorum,"
1671 of "Cicernus Oratio pro Licinio," with notes
and a commentary, 1677; and of "Longinus," Gr. and
Lat. with Baldean's French translation, and notes by him-
self and others. He had also directed his attention to al-
chemy, as appears by his "Manufactio ad Cadam che-
micum;" "Sapientia infaniens, five Promiffa chemica:" and
"Fortuita Sacra, in quibus, prater critica nonnulla,
tota fabularis Historia Graeca, Phenicia, Aegythiaca, ad
Chemiam pertinere apatur." From this work were fe-
lected comparisons between the Greek and Latin poets,
printed at Leyden under the title of "Diflertationes fe-
exae criticae de Poetis Graecis et Latinis." Tollius died in
1696.

Another brother of this family, named ALEXANDER,
prefented to the public an edition of "Appiani Alexandri
Romani Historiz," Gr. and Lat. Moreri.

TOLLUNDY, in Geography, a town of Hindoostan, in
Ouds; 18 miles N. of Bareilly.

TOLMEZO, a town of Italy, in Friuli, with a castle,
on the Tajamento. Near the town is an extensive and ce-
brated linen manufacture, which, in the year 1782, produced
40,000 pieces of printed linen for exportation; 12 miles
N.W. of Gemona. N. lat. 46° 23'. E. long. 12° 52'.

TOLMIDESSA, in Ancient Geography, a town of
Syria, in the small country called Chalidica. Ptol.

TOLMINO, in Geography, a town of Germany, and
capital of a district, in the duchy of Carniola; 9 miles
S.E. of Feldis. N. lat. 46° 12'. E. long. 13° 47'.

TOLNA,
TOLNA, a town of Hungary, on the Danube; 50 miles S. of Buda. N. lat. 46° 20'. E. long. 18° 41'.

TOLNANI, a town of Hindoostan, in the country of Baglan; 70 miles W. of Burhanpore. N. lat. 21° 15'. E. long. 75° 3'.

TOLO, a town of Spain, in Catalonia; 22 miles N. of Balaguer.—Alto, a town on the E. coast of the island of Morty. N. lat. 22° 12'. E. long. 128° 18'.

Tolo Bay, a large bay on the E. coast of the island of Celebes, very broad at its entrance, but becoming narrower toward the bottom. S. lat. 10° 30' to 3° 5'. E. long. 121° 18' to 123°.

TOLOMETO, a seaport of Africa, in the country of Tripoli, anciently called Tolemaia; 350 miles E. of Tripoli. N. lat. 32° 30'. E. long. 20° 40'.

TOLOMEI, CLAUDIO, in Biography, a patron of literature and the arts, was born at Siena, of an ancient and noble family, in 1492. Having spent many of his earlier years at the court of Rome in the service of cardinal Ippolito de' Medici, he attached himself to the duke of Parma and Piacentia. Upon his death he removed to Padua, and in 1549 was nominated to the bishopric of Cornola, an island in the Adriatic. In 1552 he became one of the six conservators of the public liberty at Siena, and joined three other citizens in an embassy to France. Having spent about two years in that country, he returned to Rome, and died there in 1555. Tolomei took pains in cultivating the Italian language, and contended that it ought to be denominated the Tuscan. With a view of reducing Italian verse to the measure and harmony of the Latin, he published, in 1539, his "Veri e Regole della Poesia Nuova;" but his scheme did not succeed. To him was ascribed the foundation of the academy "Della Virtu" at Rome, for the purpose of explaining the architectural work of Vitruvius; and for which he was eminently qualified by his classical and antiquarian learning.

TOLON, in Geography, an island in the Grecian Archipelago. N. lat. 37° 35'. E. long. 23°.

TOLONES, one of the smaller Philippine islands, near the N. coast of Samar. N. lat. 12° 50'. E. long. 124° 57'.

TOLOSA, or TOLONSETA, a town of Spain, and capital of the province of Guipuscoa, celebrated for its steel manufacture, particularly of sword-blades; 7 miles S. of St. Sebastian. N. lat. 43° 12'. W. long. 2° 7'.

Tolosa, in Ancient Geography, a town of Gaul, in the Narbonne province, and diocese of Toulouse.

TOLOTÉ, a people of Africa, in Mauritania Cafraria.

TOLOUR, in Geography, an island in the East Indian sea, of a triangular form, and about 45 miles in circumference, considered as one of the Salibaho islands. N. lat. 4° 12'. E. long. 126° 28'.

TOLOUS, in Ancient Geography, a place of Spain, between Ilerda and Pertusa. Anton. Itin.

TOLPAS, in Geography, a river of Ruffia, in the province of Ufiug, which runs into the Schugor, N. lat. 63° 50'. E. long. 58° 22'.

TOLPIS, in Botany, a word of which we can trace neither the derivation nor meaning, and which seems to have been actually invented by Adanson; nor is it the only instance of such a kind of forgery to be found in his book. We have sometimes been tempted to suppose these seemingly original names of Adanson might be reduced from some condite sources of nomenclature or literature; but the search has always proved vain. He was no scholar, nor is his new French orthography founded in any extensive knowledge, much less any refined taste, in language, but in mere affectation. Gartner cannot be excused for adopting the above name, when he had the choice of an excellent one, (see Drepania,) given by Jussieu to this same genus. Nevertheless, Tolpis is now established, and cannot without inconvenience be set aside.—Adanf. Fam. des Pl. v. 2. 112. Gartner v. 2. 371. t. 153. Wild. Sp. Pl. v. 3. 1658. Ait. Hort. Kew. v. 4. 451. Smith Prod. Fl. Græc. Sibth. v. 2. 140. Lamarck Illutr. t. 651. Bivona Monogr. delle Tolpidi. (Drepania; Juff. 169. Desfont. Atlant. v. 2. 323.)—Clafs and order, Synagenea Polygania-aequali. Nat. Ord. Compositæ. semenculi. Linn. Ciboracæae. Linn.

Gen. CH. Common Calyx ovate, of many linear, nearly equal, parallel, close scales, with a distinct series of somewhat feathered and lax, awl-shaped, incurved scales at the base. Cor. compound, imbricated, uniform; the florets numerous, equal, all perfect, each of one petal, ligulate, abscis, five-toothed. Stam. Filaments five, capillary, short; anthers united into a cylindrical tube. Pist. Germin ovate-oblong; style thread-shaped, the length of the stamens; stigma two, recurved. Peric. none, except the cloven permanent calyx, tubid at the base. Seeds solitary, small, obovate, flattened; down fetal; of that of the radius of numerous, little, membranous, equal, acute, marginal teeth, or scales; that of the disk of similar scales, accompanied by two, or ten straight, rough bristles, longer than the seed. Recept. cellular, with crenate edges to the cells. Eff. CH. Receptacle cellular. Calyx equal, with many awl-shaped scales at the base. Seed-down of the circumference toothed; that of the disk toothed, accompanied by several bristles.

The present genus agrees most with Crepis in habit. (See that article.) The seed-down affords a clear distinctive character, and the outer scales of the calyx do not assume that enlarged, dilated, tubid appearance so remarkable in Crepis.

1. T. Barbata. Purple-eyed Succory-hawkweed. Willd. n. 1. Ait. n. 1. Prodr. Fl. Græc. n. 1942. Bivona Tolp. 13. t. 3. Savi Etrufc. v. 1. 183. (Crepis barbarata; Linn. Sp. Pl. 1131. Curt. Mag. t. 35. Hieracium medio nigro boeticum magus; Herrn. Parad. 185. t. 185. H. calyce barbato; Column. Echfr. v. 2. 28. t. 27. f. 1. H. medicum nigrum, flore majore; Gen. Em. 1625.)—Leaves elliptic-lanceolate, toothed. Outer scales of the calyx falcate, dilant, longer than the inner. Bristles of the seeds two or four.—Native of sandy fields, or wafte ground, especially near the sea, in the south of France, Italy, and the Levant, flowering in May and June. This elegant hardy annual, very early of cultivation, has, for two hundred years past, been common in gardens, where it produces, from Midsummer till the autumnal frosts, abundance of flowers. The flæms are branched, erect, spreading or decumbent, rather downy, leafy, repeatedly subdivided at the top, in a corymbose, or somewhat forked manner, the flowers, which are at first terminal and solitary, being copiously overtopped by their successions. The scales of their outer calyx are partly scattered down the stalk. Corolla expanded in the early part of the day only, and in fullline, an inch, more or less, in diameter, of a delicate pale lemon-colour; a number of the central florets of a dark purplish chocolate hue, forming an almost black velvet-like spot, or eye, in the middle, which constitutes the chief beauty of the flower. The leaves are rather regularly toothed, alternate, fiddle, green, slightly roughish; the upper ones mostly entire.


"H. cichorii
TOL

OL Re, in Geography, a town of Hindoostan, in the Carnatic; 15 miles E. of Volconda.

TOLSEY, in our Old Writers, denotes the places where merchants meet in a city or town of trade.

The word is compounded of the Saxon tol, tributum, and fes, fides.

TOLSTONOSKOI, an offshoot of Russin, in the government of Tobolik, on the Enifie; 280 miles N.W.N. of Turuchank. N. lat. 70° 16'. E. long. 85° 14'.

TOLT, in Law, a writ whereby a cause depending in a court-baron is removed into the county-court. Old Nat. Br. 4. See Pone.

TOLTEN, in Geography, a river of Chili, which runs into the Pacific ocean, S. lat. 38° 50'.

TOLTERAZITLI, in Natural History, the American name of a flower, much resembling the novalculus lapisi, but variegated with red and black spots. They use the powder of this flower and crystal, calcined together, for dif- cates of the eyes.

TOLON, in Geography, a sea-port town of South America, in the province of Carthagena, with a harbour open to the Spanish Main; in the environs of which is found the celebrated balmam to which it gives name; 50 miles S.E. of Carthagena. N. lat. 9° 45'. W. long. 75° 25'.

TOLU Balsam. See Balsam.

TOLU-Tree, Balsam of, in Botany. See Toluifera.

TOLVA, in Geography, a town of Naples, in Basilica; 9 miles S.S.E. of Acerra.

TOLUCO, a town of Mexico, in the province of Mexico; 100 miles W.N.W. of Mexico.


Gen. Ch. Cal. Perianth inferior, of one leaf, bell-shaped, five-toothed, nearly equal; one angle (or tooth?) more dilated than the rest. Cor. Petals five, inserted into the receptacle; four of them equal, linear, somewhat longer than the calyx; the fifth twice as large, involute heart-shaped, its claw the length of the calyx. Stam. Filaments ten, very short; anthers longer than the calyx. Pith. Germen oblong; style scarcely any; stigma acute. Petio. and Seeds not described.

Eff. Ch. Calyx five-toothed, bell-shaped. Petals five; the lower one very large, inversely heart-shaped. Style none.

1. T. Balsamum. Balsam of Tolu. Linn. Sp. Pl. 549. Willd. n. 1. Woodv. Med. Bot. t. 193. (B. toloutanum; Dale Pharm. 304. B. toloutanum, folia certe similebus, quod candidum cit; Bauh. Pin. 401.)—Native of the province of Tolu, in South America. We have never seen any original speciem of this plant, nor any figure, except Dr. Woodville's, drawn from a dried speciem in sir Joseph Banks's collection, the authority for which is not mentioned. Miller appears to have raised plants from seeds sent by Houtouin, but they probably did not prosper long. Perhaps the speciem just mentioned was obtained from the same

when dried. The teeth, which make a part of the seed, are, though here and there present, are so small as to be easily overlooked: the bristles are numerous, feathery.

H. cichorii favi folio, denticulato, curvo, diurnae florens, inanum; Cupan. Hort. Cath. 366.)—Leaves lanceolate, strongly toothed, somewhat hairy. Outer scales of the calyx lacin, the length of the inner. Bristles of the seeds four or more.—Common in Sicily, by way-sides, on cackareous hills near Messina, and various parts of mount Etna, flowering in June and July. Bivona. Dr. Sibthorp found it in Cyprus. The root is perennial, tapering, milky. Stems one or more, erect, wand-like, somewhat angular, one and a half or two feet high, leafy, much branched and corymbose at the upper part. Leaves more tapering at the base, with longer teeth, and rather more hairy than in the first species. Flowers numerous, about half as large as the former, of a pale sulphur-colour, reddish underneath, sometimes purplish-brown in the middle. Outer scales of the calyx lacin, partly diftorted down the flalk, but none of them longer than the inner scales. Bristles on the seeds of the disk eight, ten, or more, even in a speciem fent by baron Bivona himself. Can the purple-eyed variety of this species be the Hieracium medio nigrum, flore minor, mentioned in Ger. Em. 1625, along with the preceding?

3. T. sectans. Clove-cupped Suckory-hawkweed.—Bivona Ttolp. t. 11. t. 2. (T. virgata; Savi Etruf. v. 1. 184. Crepi ambita; Balbí Crep. 4. t. 1. "Decand. Franc. 40. t. 4.")—Lower leaves lanceolate, deeply and unequally toothed; upper linear-lanceolate, entire. Outer scales of the calyx clofe, half as long as the inner. Bristles of the seeds fix or more.—Native of hills in Italy, Sicily, and the south of France, flowering in June and July. Root peren- nial, tap-shaped. Stem three or four feet high. Pubeffence of the whole plant very variable. Radical leaves numerous, spreading circularly on the ground, four inches long, taper- ing at the base; those of the stem, except a few at the bottom, slender and awl-shaped. Flowering branches rather more diltant and slender than the leaf. Calyx mealy. Corolla lemon-coloured. "Bristles of the seeds usually fix, sometimes only five, or four;" Bivona: "sometimes four;" Savi.


5. T. coronopifolia. Flethy-leaved Suckory-hawkweed. Bivona Ttolp. 17. t. 5. (Crepi coronopifolia; Desfont. Actes de la Soc. d'Hist. Nat. de Paris, v. i. 38. t. 9, excluding the cyn. of Boccone, 13. t. 7. Willd. Sp. Pl. v. 3. 1606.)—Lower leaves pinnatifid, with linear segments. Flower-flalks divericated. Outer scales of the calyx clofe, very short. Bristles of the seed ten or more.—Native of the Canary islands, from whence it was brought to Kew by Mr. Maffon, in 1777. A hardy annual plant, flowering in August and September. The stem is a yard high, round, frilatc, leafy, foomat, much branched. Leaves smoothe, rather fuculent, various in fize; their segments dominant, often subdivided. Flowers numerous, small, yellow, on flightly fealy hollow flalks. Calyx white and cottony; its outer scales awl-shaped, unequal, feathery spreading, except...
fame lourse. Authors describe the tree as lofty, with large branches, and a thick greyish bark; the leaves like those of the Carob. If so, they are pinnate, as the natural order of the genus should indicate; but of which Dr. Woodville seems not to have been aware. The flowers in his figure are racemose. All we can make out respecting the characters of this tree confirm the account of Mutis, of its close affinity to Myroxyylon, see that article, pp. 1; the long-flaked germen of the latter appearing to be the only difference which is even obliquely hinted. The generic name of Tolufera therefore, though the most ancient, should give way to Myroxyylon, as the most comprehensive.

T. cochinchinensis, Loureir. Cochinch. 262, having simple leaves, and a berry with one or two seeds, should seem, as Poiret observes, in Lamarrick’s Dict. v. 7. 696, to be very different from the original Tolufera, and more probably a Bursera.

Tolufera, in Gardening, compriees a plant of the exotic tree kind for the floe, of which the species cultivated is the balsam of Toluy tree (T. balsamum).

Method of Culture.—This tree is raised from seeds, which should be obtained from its native situation, and be sown as soon as possible afterwards in pots of light earth, plunging them in the bark-bed of the floe. When the plants have three or four inches growth, they should be potted off separately, giving them water, and replumbing them in the bed. They afterwards only require to be managed as other woody floe plants.

They afford variety in floe and hot-house collections among other potted plants. A balsam of great use in medicinal compositions is extracted and prepared from this tree.

TOLZ, in Geography, a town of Bavaria; 24 miles S. of Munich.

TOL, a river of Russia, which rises 80 miles S.E. of Kufnetz, in the government of Kolvan, and runs into the Oby, 32 miles W.W. of Tomk. N. lat. 56° 40'. E. long. 89° 14'.—Alo, a river of China, which runs into the Heng, 5 miles S. of Heng-chan.

Tom Zil, a town of the Arabian Ira, on the Tigris; 118 miles S.S.E. of Bagdad.

TOMADÆORUM Insulae, in Ancient Geography, islands situated in the Arabian gulf. Potl.

TOMAUS, a mountain of the Peloponnesus, in Messenia, near the promontory Coryphaum. Thucydidis.

TOMAHABI, in Geography, a town of Peru; 60 miles S. of Potoè.

TOMAN, or Touman, a kind of imaginary money used among the Perfians in the keeping of their books, and calculated to facilitate the reduction of money in the payment of considerable sums. The toman contains 50 abasins, 100 manoomis, 200 fardrees, 1000 dinars bifi, or 10,000 dinars simple. The toman and dinar are imaginary monies. An abasin is worth 2 manoomis, 4 fardrees, 40 kabefquis, 20 dinars bifi, or 200 dinars.

D’Herbelot derives the word from the language of the Moguls, where it signifies the number of ten thousand. Eben Arbabchah says, that the word tomian, when used to express a weight, or money, contains ten thousand silver Arab drachmas, called mihatkal; which are a third lighter than the Attic.

The Moguls, &c. frequently use toman for ten thousand men; and say, c. gr. that the city Samarcand contains seven tomans of people fit to bear arms; and that of Andeehan nine tomans.

TOMAII, in Geography, a kingdom of Africa, situated on the side of the river Gambia, W. of Kantor.

TOMANANISA, a town of Japan, in the island of Nippon; 75 miles W. of Meaco.

TOMAR, a circar of Bengal, bounded on the N. by Sillec, on the E. by Pachete, on the S.E. by Singboom, and on the W. by Napour; about 20 miles long from N. to S., and from 10 to 20 broad.—Alfo, a town of Bengal, and chief place of a circar of the same name; 145 miles W. of Calcutta. N. lat. 23° 10'. E. long. 85° 33'.

TOMAR. See Thomas.

TOMARA, in Ancient Geography, a town of India, on this site of the Ganges. Potl.

TOMARE, a mountain on the confines between Theoprotia and Chaonia, two countries of Epirus.

TOMATO, in Botany, a word whole origin we have not ascertained, is the name of the Love-apple, or Solanum Lycopersicum. See SOLANUM.

TOMB, in Geography. See TUMB. Tomi, includes both the grave or sepulchre, wherein a defunct is interred, and a monument erected to preserve his memory.

The word is formed from the Greek, tomē, to make, sepulchre; or, according to Menage, from the Latin, tumba, which signifies the fame.

Among the Romans, none but the emperors, vestals, and perfons signalized by great actions, were allowed to have tombs in the cities, the rest were all in the country, near the high roads; whence those common words, signe, &c., which are still retained in the inscriptions of our monuments, though fet up in churches, &c.

At Anchiale was anciently seen the tomb of Sardanapalus, with this inscription in verse: “Sardanapalus built Anchiale and Tarbus in one day: go well, eat, drink, and be merry; the reli is nothing.” Strab. Geo. lib. 14.

The Romans had a kind of empty tomb, called cenatephium, an honorary tomb, in which the body of the deceased was not laid. See CENOTAPH.

The occasion of this was a superstitious notion, that the souls of those who had not funeral honours, wandered a hundred years by the banks of the rivers of hell, before they were admitted to pass over. The cenotaph being made, the fame ceremonies were practifed as at real funerals.

The cenotaphia were inscribed with the words ob honore, or memoriae sacrum, whereas other tombs in which the ashes were really deposited, were inscribed D. M. S. q. d. facer ad manes. When the words taceo omne were added, it declared the ashes enclosed therein belonged to a person infamous for some crime.

Tomb-Stones, Characters on. See Character.

Tomb-Stones, Epitaphs on. See Epitaph.

TOMBA, in Geography, a river of Peru, which runs into the Pacific ocean, S. lat. 17° 50'.

TOMBAC, a name given by the French to a yellow metal, very nearly approaching to what we call Prince’s metal, and made by mixing and fusifig together a large quantity of zinc with a smaller of copper. See Gold-coloured Metal.

TOMBACONDA, in Geography, a town of the kingdom of Burfall. N. lat. 13° 56'. W. long. 14° 57'.

TOMBALY Point, a cape on the west coast of Africa. N. lat. 10° 48'. W. long. 14° 30'.

TOMBAY, a town of Pegu; 6 miles S. of Pegu.

TOMBEBBEUF, a town of France, in the department of the Lot and Garonne; 12 miles N.W. of Villeneuf d’Agen.
TOMBUL, a town of Africa, in Quoja. N. lat. 6° 50'.
TOMBIGHE, a river which rises in the north part of Georgia, enters West Florida, and joins the Mobile, N. lat. 31° 32'. W. long. 87° 50'.—Also, a town of West Florida, on a river of the same name. N. lat. 7° 45'.

TOMBUCTOO, or Tumultoo, a city of Africa, the capital of a rich and populous kingdom, said to have been built in the 13th century by Soliman, pretended to be of the royal race of Morocco. The extent of its territory is very imperfectly ascertained; but it is said to extend northward to the confines of Sahara or the Desert, comprehending a tract of country about 90 miles in breadth; its western boundary being 150 miles W. of the city, and the eastern extending to the Bahar Soudan, or Sea of Soudan, which is a lake formed by the Nil-Al Bebede or Niger, whose opposite shore is not discernible. The city is situated on a plain, surrounded by sandy eminences about twelve miles N. of the Niger, and three days' journey from the confines of Sahara. It is said to be twelve miles in circumference, but without walls. The town of Kalra, situated on the banks of the river, is its commercial depot, or port. By means of a water-carriage E. and W. of Kabra, the trade of Tombuctoo acquires great facility; and hence the various articles of European as well as Barbary manufactures brought by the akkabaahs, or caravans, from the N. of Africa, are distributed to the different empires and states of the Soudan and the South. This great mart is referred to by all nations, whether they bring the various products of their respective countries, to barter for the European and Barbary manufactures. The houses at Tombuctoo have, in general, no upper apartments; they are spacious, and of a square form, with an opening in the centre, towards which the doors open. Contiguous to the door of entrance is a building, confining of two rooms, called a duaria, in which visitors are received and entertained, so that they do not see the women, who are very handsome. The men are so excessively jealous of their wives, that when the latter visit a relative, they are much muffled up, in order to disguise their persons; their face is also covered with their garment, through which they peep in order to explore their way. The king, whose authority has been acknowledged at Tombuctoo ever since the death of Muley Ithmael, emperor of Morocco, is the sovereign of Bambarra: his name in 1800 was Woolo; he is a black, and a native of the country which he governs: his usual place of residence is Jinnies, though he has three palaces at Tombuctoo, which are said to contain an immense quantity of gold. Many of the civil appointments at Tombuctoo, since the decease of Muley Ithmael, and the consequent decline of the authority of the emperor of Morocco, have been occupied by Moors of Maroquin origin; but the military appointments, since the forementioned period, have been distributed among Negroes of Bambarra, assigned to them by the king Woolo. The inhabitants are chiefly Negroes, who resemble the Arabs in hospitality, and value themselves on their attention to strangers. The various costumes exhibited in the market-places and streets indicate the variety and extent of the commercial intercourse with the different nations of Central Africa; the individuals being each habituated in the dress of his respective country. The tolerance prevalent at Tombuctoo is worthy of notice. The divan, or l'alamoa, never interferes with the religious tenets professed by the different people who resort hither for commercial or other purposes. The police of this place is extolled: robberies and house-breaking are scarcely known: the inhabitants of the town are peaceable and orderly. The government of the city is intrusted to a divan of twelve alemmas, or men learned in the Koran, and an umpire, who retain their appointments, received from the king of Bambarra, for three years. Their power is great. The civil jurisdiction is directed by a cadi, who decides all judicial proceedings according to the spirit of the Koran: he has twelve attendants, called tabby, who attend him, and to each of these belongs a separate department of justice. It is asserted that till of late no Jews were permitted to enter the town; and it is said, moreover, that those Jews who now resort thither, are obliged to become Mahometans. The probable reason of the exclusion of the Jews is deduced from the extreme jealousy of the individuals of the Moorish factory, whose avarice induces them to prevent any person from sharing their emoluments, whenever a plausible pretext can be found.

The climate of Tombuctoo is much extolled as salubrious and invigorating; infomuch that there is no man of the age of eighteen, who has not his wives or concubines; and it is a disgrace for a man to attain the age of puberty without being married. The natives possess an elegance and finery of manners, a great flow of animal spirits, and an invincible attachment to their country. The accommodation for travellers is very simple; camels, horfes, drivers and merchants, rendezvous at a large house, with an open space in the middle, round which are rooms sufficient for containing a bed and a table. The merchants are accommodated with houfe during the period of their stay, for bartering and exchanging their commodities, which they inveil in the produce of Soudan as speedily as possible, so that they may be ready about September for the akkabaah, and proceed to Morocco, Cairo, Jida, or some other place. The manufactures of different kinds of apparel are prepared chiefly by the women in their own houses, whenever they cannot procure European cloths and linens, or when there is a great scarcity of Fez and Tablet manufactures of silk, cotton, and woollen. The soil about Tombuctoo is generally fertile, and near the river produces rice, millet, Indian corn, and other grain; wheat and barley grow in the plains, and are cultivated principally by the Arabs of the tribe of Barbeesha, who receive a tribute from the town for forbearing to plunder the caravans from the north which pass through their territory. Coffee grows wild here, as does also indigo, which latter is occasionally cultivated, and produces a very fine blue dye used in their various cotton manufactures. The husbandmen are very expert in the management of bees: honey and wax are abundant, the former being used at Tombuctoo as an article of food, and the latter for candles. The river about Kabara affords a supply of fish. The mines of gold which lie S. of the bed of the river belong to the sultan Woolo, who refides at Jinnie; but his gold is deposited in his palaces at Tombuctoo. The exact bearing and distances of places from Tombuctoo are not satisfactorily ascertained. The city probably, says Mr. Jackson, to be situated 1500 miles S.S.E. of Fez, 1150 miles about S.S.E. of Akka, Tatta, and Wedinoon; 1500 miles in nearly the same direction from Morocco; 1320 miles from Tablet; about 230 miles E. of Jinnie; and 1500 miles E. of Housa. Major Rennell, in his Geographical Elucidations annexed to the Proceedings of the Association for discovering the Interior of Africa, says that Tombuctoo is fifty days' caravan travelling from Tatta, a place situated on the confines of Morocco, Drah, and Zengaga, and on the route from Morocco and Suez to Tombuctoo. Tatta is found to be nine and a half days' journey from Morocco; and one day short of a fatation on the Wad-drah or Drah river, which fatation is four days, or sixty-fix miles lower down than Tinguleen, a place in D'Anville's and De Lisle's map of Africa.
Africa. It was also twelve days' journey from the city of
Nun, or Non, which city, by Ben Alli's account, is two
days from the sea-coast, and well known to be opposite to
a cape of the same name. These authorities, says the major,
enable us to place Tatta 170 miles S.S.E. from Mor-
rocco. Thus, 50 days from Tatta to Tombuctoo, at
13 miles each day, produce 650 miles. By Ben Alli's
report, Tombuctoo is 48 days from the capital of sultan
Fullan, lying within the district of Gallan, on the river
Senegal: 48 days, at 13 each day, produce 620 miles; and
this line of distance meets that from Tatta in lat. 19° 40',
and nearly midway between Gallan and Cafhna. In this
position it falls only 23 miles to the N.W. of D'Anville's
Tombuctoo.

The country north of Tombuctoo is inhabited by a power-
ful tribe of Arabs, called Brabeeaha, whose original stock
emigrated in the eighth century, and took possession of a
tract of country bordering on Egypt westward: they are
a turbulent, refractory, and warlike tribe, but much afraid
of fire-arms, as they have no such, being armed only with
the lance, and occasionally with knives or daggers. There
is another nation, situated many journeys south-east of
Tombuctoo, who worship the sun, and abject from ani-
mal food, subsisting on milk and vegetables. In a part of
the country between Tombuctoo and Cafhna is dis-
covered a race of people, compared by the Arabs to the
English, who speak a language different from all the others
known in Africa, and resembling the whistling of birds,
to which they compare the English language. They ride
on saddles like those used in England, and wear rowelled
spurs, which are peculiar to themselves. Their faces are covered
by turbans, and their weapons are swords, bows, arrows,
and lances. They are said to be a groveling superstitious
people; their bodies, as well as their houses, being covered
with charms or amulets. It is said that there is a water com-
unication between Tombuctoo and Cairo; but the expence
of land-carriage by camels being more moderate, the other
is not used.

Tombuctoo, has, from time immemorial, been the great
emporium of Central Africa; an extensive and profitable
trade having been carried on with the various maritime states
of North Africa, viz. Morocco, Tunis, Algiers, Tripoli,
Egypt, &c. by means of akkabaahs, or accumulated ca-
раванов, which crofs the Sahara, or Great Defert, generally
between the months of September and April: these akka-
baahs consist of several hundred loaded camels, accompa-
nied by the Arabs who let them to the merchants.
The articles transported from Fez to Tombuctoo are principally
the following; viz. various kinds of German linens, Irish
linens, muslins, cambrics, fine cloths, coral beads, amberbeads,
pearls, Bengal raw silk, balsam, coffee, fine hyfox teas,
refined sugar, and various manufactures of Fez and Tafilet,
such as shawls and fashes of silk and gold, haykus or pieces
of silk, of cotton and silk mixed, of cotton and wool: to
which may be added red woollen caps, turbans, Italian silks,
batimis, clooves, ginger, and pepper, Venetian beads,
cowries, tobacco and salt. The produce of Souadan in re-
turn for these articles, consists principally in gold-dust,
twisted gold rings of Wagana, gold rings made at Jinnie,
bars of gold, elephants' teeth, gum of Souadan, grains of
Sahara, or grains of paradise, odoriferous gums, and a
large number of flaves purchased at Tombuctoo of the
flates or slave merchants, and brought from those regions
which border on the mountains of the Moon. To these we
may add oil-rich feathers and ambergris, collected on the
confines of the Defert. The circulating medium at Tom-
buctoo is (rubber) gold-dust, which is exchanged for mer-
chandize; a plattolia being worth 20 mizans of gold, and the
value of a mizan being about 11s. sterling. Jackson's
Morocco.

To the account above given of Tombuctoo, we shall
subjoin a few extracts from the narrative of Robert Adams,
a sailor, who was wrecked on the western coast of Africa,
in the year 1810, and detained three years in slavery by the
Arabs of the Great Defert, and resided several months in
the city of Tombuctoo, 4to. London, 1816.

Tombuctoo, according to this narrative, stands on a level
plain, having a river about two hundred yards from the
town on the S.E., named La Mar Zarah, three quarters of
a mile in width, appearing to have but little current, and
that little flowing to the S.W. The city seemed to Adams
to cover as much ground as Lisbon: but the houfes were
not continuous, had a ground-floor only, were built of
sticks, clay, and grafs, and were furnished merely with the
rudelt domestic implements: the town had no exterior
walls, or fortifications; and the population, of which our
informant could not make a regular estimate, bore no
proportioning proportion to the area of the place, if compared
with European towns, as indeed we may infer from the
nature of the houfes. The river-water, although somewhat
brackifh, is constantly used for drink; and Adams does not
believe that there were any wells at Tombuctoo. The
natives have no larger boats or velifs than canoes, of about
ten feet in length, made very inartificially. Of the natural
productions, vegetable and animal, we will specify a few.
The principal fruits are cocoa-nuts, dates, figs, pine-apples,
and sweet fruit of the peach kind: the, vegetables are, carrots,
turnips, sweet potatoes, negro-beans, and small cabbages:
the grain consists chiefly of rice and guinea-corn, and the
cultivation of the land is performed solely with a kind of
hoe, the only implement of husbandry that Adams observed.
The animals are elephants, cows, goats, buffaloes, camels, dro-
madedogs, dogs, antelopes, rabbits, and a creature called
beirte, resembling a very small camel, and used only for riding.
Besides these, there is, in the vicinity of Tombuctoo, a molt
extraordinary animal named courson, somewhat resembling a
very large dog, but having an opening or hollow on its back
like a pocket, in which it carries its prey. It has short
pointed ears and a short tail. It's skin is of an uniform reddif-
h brown on its back, like a fox, but its belly is of a light-
grey colour. It will ascend trees with great agility, and
gather cocoa-nuts, which Adams supposfs to be a part of its
food. But it also devours goats and even young children,
and the negroes were greatly afraid of it. Its cry is like
that of an owl. The natives of Tombuctoo are a stout
healthy race, and are seldom sick, although they expose
themselves by lying out in the sun at mid-day, when the
heat is almost insupportable to a white man. It is the
universal practice of both sexes to grease themselves all over
with butter produced from goats' milk, which makes the
skin smooth, and gives it a shining appearance. This is
usually renewed every day: when neglected, the skin becomes
rough, greyish, and extremely ugly. They usually sleep
under cover at night; but sometimes, in the hottest weather,
they will lie exposed to the night-air with little or no cover-
ing, notwithstanding that the fog which rises from the river
defends like dew, and, in fact, at that season, supphes the
want of rain.

All the males of Tombuctoo have an incision on their
faces, from the top of the forehead down to the nofe, from
which proceed other lateral incisions over the eyes-brows,
into all of which is inferted a blue dye, produced from a
kind of ore which is found in the neighbouring mountains.
The women have also incisions on their faces, but in a dif-

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ferent
ferent fashion; the lines being from two to five in number, cut on each cheek-bone, from the temple straight downwards: they are also stained with blue. These incisions being made on the faces of both sexes when they are about twelve months old, the dyeing material which is injected in them becomes scarcely visible as they grow up. The ornaments of the natives are similar to those which are generally found among savage tribes. It does not appear that they hold any public exercise of religion, or have any house of worship, or ever meet to pray, though some ceremony, seemingly religious, was observed at the burial of the dead; but Adams was probably not a very accurate inquirer into these matters. Park describes the natives of Soudan as paying a prayer on the appearance of the new moon; and if the religious observances of these people were so rare of occurrence, it is not surprising that they escaped the seaman's notice.

Adams says that he saw no shops at Tombuctoo. The articles bought for sale, which consisted chiefly of tobacco, tar, gunpowder, blue nankeens, blankets, earthen jars, and some filks, are obtained from the Moors, and remain in the king's house until disposed of. The only other objects of trade seemed to be slaves. Gunpowder appeared to be more valuable than gold, since a greater weight of the former was given in a barter of the two articles. The exports of this people were chiefly gold-dust, ivory, gum, cowries, offrith-feathers, and goat-ikins, the latter stained red and yellow. Slaves were procured by purchase, and also by predatory incursions into neighbouring states. The king of Tombuctoo seemed to be despotic; but the government was mildly exercised; he and his wife were old and grey-headed; blue nankeen, adorned with gold lace, formed the usual dress of both; and the queen was accustomed to sit and look at Adams and Stevens for hours together. The palace confided simply of eight or ten small rooms on a ground-floor, not even white-washed, and built of clay and grays. To the surprise of the African committee, Adams did not recollect to have heard there of the Joliba river, a subject of such interesting research: but we should consider that the same river would probably pass under different appellations in the territories of different states. The name of La Mar Zarah closely corresponds with that of the Zayr, or Congo river, presupposed by Park to be the termination of the Niger in the Atlantic ocean; but the distance from Tombuctoo to that mouth renders it highly improbable that the river should preserve its name throughout. It should be added, also, that the Tombuctoo river is supposed to fall into the Niger at twelve miles distance from that town; yet the breadth ascribed to it by Adams will not allow us to consider it as a merely submersive stream. The editor draws two simple conclusions from this information relative to Tombuctoo; the one, he says, propitious, and the other adverse to the progress of discovery and civilization. viz. the "mild and tractable manners of the Pagan Negroes of Soudan, and their friendly deportment towards strangers," on the one hand;—and on the other, the "extended and baneful range of that original feature of African society—Slavery."

TOME, a small island near the west coast of France. N. lat. $43^\circ$ 50'; W. long. $3^\circ$ 24'.

TOME, τόμη, a bound book or writing that makes a volume.

TOMEION, formed from τόμην, fēlīon, a general name used to express any sharp or cutting instrument, used either in surgery or in the mechanic arts.

TOMELLOSO, in Geography, a town of Spain, in New Castile; 58 miles S.E. of Toledo.

TOMENTOSE LEAF, among Botanists. See LEAF:

TOMENTUM, properly signifies flocks or locks of wool, but by botanists is used for that soft downy matter which grows on the leaves of some plants, hence denominated tomentose; as verbusum tomentum, cardus tomentosus, &c.

TOMENTUM CEREBRI, in Anatomy, the flocculent internal surface of the pia mater, with its waving productions belonging to the intervals of the convolutions. The vessels, which enter the cerebral substanse, give to the whole a completely villous appearance: it is felt when the vessels have been injected, and the membrane floats in water.

TOMEPENDA, in Geography, a town of South America, in the audience of Quito; 5 miles S.E. of Jaen de Bracamoros.

TOMERIT, a mountain of European Turkey, in Albania; 12 miles E. of Dulcigno.

TOMEROS, in Ancient Geography, a river of Asia, in Carmania. Arrian.

TOMERUS, a river of India, W. of the Indus and Arabus, so named by Nearcirus. It had its source towards 27° 20' of lat. traversed the country of the Orites, and discharged itself into the sea about 25° lat.

TOMÉSOBI, in Geography, a lake of Lower Canada, whence issues the branch of the river St. Francis, on the borders of Vermont.

TOMEX, in Botany, from tomentum, woolly down, alluding to the pubescence of the plant. The original Tomer of Linnaeus proving a Calliarpa, see that article, sp. 3. Thunberg transferred the name to a new Japanese genus, with which it now remains. Such adaptations of different names are not entirely to be commended, and yet we cannot but think them more allowable than the too frequent practice of Linnaeus, of applying ancient Greek or Latin ones to new genera, avowedly different from the original plants, though the latter could not be ascertained. —Thnub. Jap, 10. Nov. Gen. 65. Schreb. 315. Willd. Sp. Pl. v. 2. 839. Mart. Mill. Dict. v. 4. Juff. 440. Poiret in Lamarck Dict. v. 7. 696.—This genus is famed with Tetranthera.—see that article.

TOMI, in Ancient Geography, a town of Lower Media, towards the mouth of the Danube, near the Euxine sea. This town was considerable, and was the place of Ovid's exile. It was the metropolis of Pontic Scythia. According to this poet, in his third book of Tristes, this city was founded by a colony sent thither from Miletus. Tomi was declared the metropolis of Scythia under the emperor Theodosius, and it was the seat of the bishop of that country.

TOMIAS, τομέας, in Antiquity, an appellation given to the sacrificers offered at the ratification of solemn leagues. It was so called because they cut out the testicles of the victim, and took the oath flanking upon them.

TOMIDA, in Geography, a town of Japan, in the island of Nippon; 5 miles S.S.W. of Quano.

TOMIN, in our Old Writers, a weight of twelve grains, used by goldsmiths and jewellers.

TOMINA, in Geography, a government of Peru, in the vicerealty of Buenos Ayres, and archbishopric of La Plata, which begins about sixteen leagues south-east from the city of La Plata. The climate here is hot, and consequently its productions are such as are common to hot countries. Some parts have vineyards, and in others are made considerable quantities of sugar. It also abounds in cattle and sheep. Its extent in some parts is near forty leagues. The vicinity of some free Indians is a continual uneasiness to the towns in this jurisdiction, and even to the city.
city of Plata itself, as they have often attempted to surprize
it. Tomina, the chief town, is situated 60 miles E.N.E.
of La Plata. S. lat. 15° 10'. W. long. 65° 46'.

TOMINE, in Commerce, a weight for gold and silver
in Spain. Gold is weighed by the Castilian mark of 50
castellanos, 400 tomines, or 4800 grains. Silver is weighed
by the same mark, but it is divided into 8 ounces, 64 ochovas,
128 adarnes, 384 tomines, or 4688 grains. The Castilian
mark weighs 3557 English troy grains; hence 144 such
marks correspond nearly to 89 lbs. English troy weight; and,
and, hence 96 Castilian ounces = 89 troy ounces.

TOMINEIO, in Ornithology, a name by which some
authors have called the guaimumbi, or humming-bird, the
smallest of all birds.

The name seems derived from the Spanish tomine, a
grain weight, as if they would call it a bird of a grain
weight.

TOMINY, in Geography, a town on the east coast of
the island of Celebes, in a bay to which it gives name. S. lat.
8° 45'.

TOMINY BAY. See GUNONG-TELU.

TOMISA, in Ancient Geography, a small country of
Afia Minor, which separated Cappadocia from Mount
Taurus.—Also, a town of Afia, upon the eastern bank of
the Euphrates.

TOMISUM, or TOMISUS, a town of Afia, in Greater
Armenia, in the country named Sophene. Strabo.

TOMKIN and TOMPSON. See TAMPTON.

TOMKINS, THOMAS, in Biography, a disciple of Bird,
M. B. and gentleman of his majesty's chapel (James L.)
was an excellent musician. He published songs of three,
four, five, and six parts, without a date. But it appears
by a copy of these songs in the library of Christ-church
college, Oxon. that they were published in 1622.

There are two very curious compositions by Tomkins
in the 3d vol. of Dr. Tudway's "Collection of Cathedral
Music," in the British Museum: the one is a full anthem,
in twelve parts; and the other an anthem in canon through-
out, of four parts in one, both well worthy the discourse
of the admirable Bird. Indeed, by the compositions we have
scored, or examined in score, of Tomkins, he seems to us
to have had more force and facility than Morley. In
his songs there are melody and accent, as well as pure harmony
and ingenious contrivance.

Thomas Tomkins, the father of Bird's disciple, was
chantor of the choir at Gloucester, whose family produced
more able musicians, during the 16th and 17th centuries,
and on which other which England can boast. Thomas, the
younger, had several brothers, musicians, &c. who distin-
guished themselves both in composition and performance;
among whom was Giles Tomkins, according to Anthony
Wood, a most excellent organist of the cathedral at Sal-
lishbury; John Tomkins, organist of St. Paul's cathedral,
and afterwards gentleman of the chapel-royal; and
Nicholas Tomkins, one of the gentlemen of the privy-
chamber to Charles I. Thomas, the subject of the present
article, the disciple of Bird, and bachelor of music, was
afterwards organist of the cathedral of Worcester, gentle-
man of his majesty's chapel, and, at length, organist.
Though he contributed to the "Triumphs of Oriana" in
the reign of queen Elizabeth, he was living after the break-
ning out of the grand rebellion, about which time he pub-
lished a work in ten books, or separate parts, entitled
"Musica Deo sacra et Ecclesiae Anglicanae," consisting
of anthems, hymns, and other compositions fitted to the
church-service. The copy of these compositions, in Christ-
church college, Oxford, is dated 1664. If this was not a
second edition, it is probable that his son was either the
author, or at least the editor of the work. By a copy of
his songs, in the same collection, that have been laid above
to be of uncertain date, they appear to have been printed
in 1622.

Butler, in his "Principles of Music," published 1636,
spoking of the Lydian mood of the ancients, which he seems
to have perused himself he underwood, says, "of this mood
is that passionate lamentation of the musical kind; for
the death of his son Absalom, composed in five parts by
Mr. Thomas Tomkins, now organist of his majesty's chapel;
the melodious harmony of which, when I heard it in the
music-school (Oxon.), whether I should more admire the
sweet well-governed voices, with consonant insuffurments,
of the fingers, or the exquisite invention, wit, and art of the
composer, it was hard to determine." And he calls Mr.
Thomas and Mr. J. Tomkins aureum par Musicorum.

A set of his vocal church music, in four and five parts.
MS. is lodged in Magdalen college, and a printed copy in
Chrift-church, Oxford. The manuscript copy was pre-
fented to Magdalen college by James Clifford, who, in
1663, published a collection of the words, with the names
of the composers of such services and anthems as continued
to be sung in our cathedrals. To this book Ant. Wood
and others frequently refer in speaking of our choral
music.

Besides the compositions by Tomkins, mentioned above,
in the collection made for lord Harley, British Museum,
there are likewise sever al very learned and curious com-
positions by this author; particularly full anthems in eight,
ten, and twelve real parts, fugato. About this time there
was a rage for multiplying parts in musical compositions
all over Europe; and Herculean labours of this kind,
achieved by Tallis, Bird, Benevoli, and others, have been
already mentioned.

TOMLINSON's RUN, in Geography, a river of Vir-
inia, which runs into the Ohio, N. lat. 40° 29'. W. long.
80° 41'.

TOMMASI, GIUSEPPE-MARIA, in Biography, a learned
archbishop, was born at Alicata, in Sicily, in 1649, and at
the age of fifteen entered among the Theatines at Pa-
lermo. He finished his studies at Rome, where he de-

tved himself to ecclesiastical literature, and from the
author of his kind of life, and the frequency of his
devotional exercises, he was regarded as a model of the
religious character. In order to the more successful pro-

cution of his favourite studies, he obtained access to the
principal libraries at Rome, and in 1660 he published his
"Codices Sacramentorum nongentis annis vetustiores,"
4to. dedicated to Chriftina, queen of Sweden. This was
followed by some other works, and particularly, in 1688,
by his "Sacrorum Bibliorium Tituli, &c." 4to. in which
he directed his attention to the ancient mode of dividing
the Bible. Indefatigably employed in the kind of study to
which he was addicted, he published several works in Latin
and Italian, chiefly on subjects of religious worship. In
consequence of these labours, Clement XI. raised him to
the dignity of cardinal in 1712, against his own inclination;
but though his revenue was thus increased, he retained his
former mode of life, and devoted the residue of his income
to the benefit of the needy. He was a regular preacher, a
diligent instructor of the poor, and a zealous promoter of
a general reformation of manners in Rome. But death
prevented the full execution of his laudable purposes in
1713, in his 64th year. The sanctity of his life procured
for

Vol. XXXVI.
for him the title of "Venerable." A collection of his works was published at Rome in 7 vols. 4to. from 1747-54. Moreri.

TOMMASINI, Jacopo Filippo, a learned ecclesiastic, was born of a noble family at Padua, in 1597, and having entered into the congregation of St. George in Alga, he was made a doctor in theology, and advanced to the first offices in his order. In 1642 he was nominated by pope Urban VIII. to the see of Citta-Nuova, in Italy, where he died in 1654. His writings were numerous; but one of the most interesting was his "Petrarcha Redivivus," 4to. 1635 and 1650, and the "Life of Petrarch." His works are distinguished by the researches of the learned and industrious author into the antiquities and literature of Padua, Moreri.

TOMMOND, in Commerce, a measure for rice at Betefagui, or Betefacekee, in Arabia. It contains 40 kellas, and weighs 168lbs. avoirdupois.

TOMOY, in Geography, an island in the East Indian seas, about two miles in circumference, shaped like a horsetoe; subject to the sultan of Bachan. S. lat. 0° 15'. E. long. 127° 4'.

TOMOLI, in Commerce, a corn-measure at Naples, and other parts of Italy; a carvo contains 36 tomoli; and a tomolo of wheat weighs about 45 rotolli; 69 tomoli = 100 English bushels nearly.

TOM-OTHLE, in Geography, a town of United America, in Tenneffee; 20 miles S. of Tellico.

TOMOTIOCA, a word used by some authors to express the Caffarian faction.

TOMOU, in Modern History, the name of a head-dress which the women wear at Otaheite, consisting of human hair plaited in threads, scarcely thicker than sewing silk, some of which are above a mile in length, without a knot. Hawkesworth's Voy. vol. ii. p. 193.

TOMPEQUE, in Geography, a town of Mexico, in the province of Guatleca.

TOMPKINS, a post-township of New York, in the S.W. extremity of Delaware county, 100 miles from Albany; bounded on the N.W. by Mahoville, N.E. by Waton, S.E. by Hancock, W. by Broome county, and a small angle on the lake of Pennsylvania. The river Delaware traverses it centrally to the W. line, where it bends southward, and forms about half the western boundary. The land is broken by hills and valleys. This town was erected in 1806, from Waton, and called Pinefield till 1808, when it received its present name, in honour of governor Tompkins of this state. In 1810, the whole population was 896, with 153 families, 48 venatorial electors, 118 taxable inhabitants, and an aggregate of real and personal property, amounting to 43,405 dollars.

TOMSONSTOWN, a town of Pennsylvania; 22 miles from Lewistown.

TOM-TUN, a town of Corea, on the river Tounen; 633 miles E.N.E. of Peking. N. lat. 42° 52'. E. long. 129° 35'.

TOMS CREEK, a river of New Jersey, which runs between Dover and Shrewsbury.

TOMSEH, a town of Asiatic Turkey, in the province of Diarbeirik, on the Ephrathas; 70 miles W. of Diarbeirik.

TOM-SHOT POINT, a cape on the coast of Africa. N. lat. 4° 40'. E. long. 7° 40'.

TOMSK, a town of Russia, in the government of Tobolsk, on the Tom. The foundation of Tomsk was laid in the reign of the czar Feodor Ivanowitx, who built an oftrob on this spot; and this happened about twenty years before the building of the town of Kuznetsk. Several nations of these countries having been reduced by force of arms, and others voluntarily submitted to the Russians, the olrog was, by degrees, converted into a fort, and the fort in time increased to a town; which at present contains above 2000 houses within its circuit. The number of inhabitants is said to be about 8000. It was at first next to Tobolsk, the second principal city in Siberia, and continued so for some years. On the highest part of the town stands a small wooden castle, defended by fourteen pieces of cannon; and in it are a cathedral built of wood, the woiwode's house, the governor's chancellery, and an arsenal. Near the fort stand several private houses and a church. The lower part of the town is the most populous. This town is extremely well situated for commerce, and the inhabitants carry on a considerable trade. It lies in the road from Enfewick, and all the towns in the eastern and northern parts of Siberia; so that all caravans going to and from China pass through this town, besides a caravan or two going from the country of the Kalmucks. Here are, indeed, all kinds of tradesmen and artificers; but they are extremely indolent and shiftful; 540 miles E. of Tobolof. N. lat. 56° 30'. E. long. 85° 14'.

TOMSKIAN TARTARS, are Tartars who dwell on both sides of the river Tom, above and below the city of Tomsk. According to the census of 1760, they were only taxed at 450 miles.

TOMSOZOV, a town of Russia, in the government of Kolivan; 80 miles E.S.E. of Kolivan.

TOMU, a sea-port of Japan, on the south coast of the island of Niphon; 115 miles S.W. of Mosco.

TON, in Commerce, a weight in England containing 20 hundreds. (See Weight.)—Also, a measure of capacity. See Measure and Tun.

Ton, with regard to a ship. See Tonnage.

Ton, or Ton-chon, in Geography, a city of China, of the second rank, in Yun-nan; 1150 miles S.W. of Peking. N. lat. 26° 50'. E. long. 100° 23'.

TONABA, in Botany, Joff. Gen. 262, is merely altered from Aublet's Taonabo; see that article and Territorium. Joffe, p. 451, points out the Arbor, n. 3, or Scarlet-feed, Brownie's Jamaica, 368. 1. 20. f. 3, as of the same genus.

TONAGAYON BAY, in Geography, a bay in lake Ontario, near the e. end of Amherst island.

TONAL, a mountain of the Tyrol; 28 miles N.W. of Trent.

TONAY, a town of Japan, on the coast of Niphon; 135 miles N.W. of Jedo.

TONAWALD, a town of Bohemia, in the circle of Boleflau; 10 miles N.E. of Turnau.

TONCAT, or Tunat, or Tangut, a town of Turkestan, near the river Sirr. Before the time of Jenghis Khan, it was included with a wall, and had a castle for its defence, with a palace for the prince. It was the nursery of many learned men, and called Dar al Ilm, that is, the Palace of the Sciences, on account of its academy. It was a place so charming, that it became a saying, "that God never made a more delicious dwelling than at Toncat." Jenghis Khan held a general diet here in 1224, which was so numerous, that its plain, though twenty miles in length, was scarcely able to contain the great mass of people who were assembled on the occasion; 250 miles N.E. of Samarend. N. lat. 43° 10'. E. long. 64° 15'.

TONCHONG, a town of Thibet; 192 miles S.E. of Lassa.

TONGABY, in Ancient Geography, a town of Asia, in the interior of Media. Ptol.
TONDELO, in Geography, a river of Mexico, which runs into the bay of Campeachy.

TONDEMANAR, a town on the N. coast of Ceylon; 12 miles N. of Jaffnapatan.

TONDEN, a town of Denmark, in the duchy of Sleswick, and next to Sleswick one of the most ancient in the duchy; it is well built, though not very large, and the inhabitants carry on a considerable trade in corn, cattle, and fine lace. The old palace was formerly fortified, but is now dismantled and in ruins; 22 miles S. of Ripen. N. lat. 54° 59'. E. long. 8° 50'.

TONDERS, in Ancient Geography, a river of Asia, in the environs of Aria, between the rivers Indus and Arabis or Arbis; called Tuberon by Mela, and Torners by Arrian.

TONDIN, or Tandino, in Architecture. See TONE.

TONDINGA-MATOOR, in Geography, a town of Hindooftan, in the circle of Rajamundry; 48 miles E. of Rajamundry.

TONDIVANUM, a town of Hindooftan, in the Carnatic; 15 miles S. of Wandiwash.

TONDOLY, a town on the W. coast of the island of Ceylon. N. lat. 6° 57'. E. long. 120° 27'.

TONDORN, a town of Germany, in the territory of Erfurt; 9 miles S.E. of Erfurt.—Allo, a town of Bohemia, in the circle of Königgratz; 9 miles W. of Branau.

TONDOW, a town of Bootan; 25 miles S. of Taffalufton.

TONDRAVY, one of the Shetland islands, about six miles in circumference, near the W. coast of Shetland. N. lat. 60° 9'. W. long. 1° 30'.

TONDY, a town of Hindooftan, in Marawar, on the sea-coast; 33 miles S.S.E. of Trumian. N. lat. 9° 42'. E. long. 79° 2'.

TONE, a river of England, which rises about six miles N. from Wivelcombe, pales by Taunton, and runs into the Parret, between Langford and Bridgewater.

Tone, or Tunes, in Music, a property of found, by which it comes under the regulation of grave and acutæ; or, the degree of acuteness or found has, from the degree of swiftness of the vibrations of the parts of the sonorous body.

For the cause, measure, degree, difference, &c. of tones, see TUNE.

The variety of tones in human voices arises partly from the dimensions of the wind-pipe, which, like a flute, the longer and narrower it is, the thinner the tone it gives; but principally from the head of the larynx, or knot of the throat; the tone of the voice being more or less grave, as the rima, or cleft of it, is more or less open.

The word tone is taken in four different senses among the ancients: 1. For any found. 2. For a certain interval, as when it is said the difference between the diapason and disdiapharon is a tone. 3. For a certain locus or compass of the voice; in which sense they use the Dorian, Phrygian, Lydian tones. 4. For tenfion, as when they speak of an acute, grave, or a middle tone. Wallis's Append. Ptolem. Harm. p. 172.

The word tone has many different applications. In the first place, a tone, distinguished from a semitone, is the characteristic of the diatonic genus, which entirely consists of tones and semitones. Of the tones there are two kinds; major and minor. The tone major is in the ratio of 8 to 9, which results from the diapason between the 4th and 5th: the tone minor is in the ratio of 9 to 10, and results from the difference between the minor 3d and the 4th.

The generation of the tone major and that of the tone minor is equally found at the second 5th D, beginning from C.

C: for the quantity by which this D surpasses the octave of the first C, is precisely in the ratio of 8 to 9; and that by which this fame D is surpassed by E, major 3d to the octave C, is in the ratio of 9 to 10.

2dly. Tone is used in France for the English word pitch, or degree of elevation of the whole scale; as ton d'songe, cathedral pitch; ton de l'opéra, opera pitch, concert pitch, Roman pitch, &c. At present, concert pitch is nearly the same every where in England, except in our churches, when all our old organs are nearly half a note above concert pitch. The Roman pitch used to be very low; and in organs, a high pitch saves metal. A low pitch in an orchestra may save fiddle-strings, and give ease and courage to singers fearful of high notes.

The tone of an instrument is good, bad, even, or unequal.

The tone of a voice is sweet or harsh, of a good or bad quality.

To speak with a tone, is a canting kind of speech, more resembling bad fingering than good speaking.

Tone of colour, in painting, is a metaphorical expression taken from music; as clair obscure, light and shade, in music, is from painting.

The French desirer an intelligent well-bred person, who has kept good company, by a metaphor from the key in music: when they say that he or she has le ton de la bonne conversation.

Tone, in Physiology, a term used without any very definite meaning, generally to express the free in which the functions are healthily performed. Tonic power is another vague expression, usually applied to those motions of the animal parts which are not obvious to our senses, although sufficiently evinced by their refusals; as nutrition, secretion, the passage of fluids along excretory ducts, &c. See LIFE.

Tone, in Rhetoric, denotes a certain inflexion or modulation of the voice, sometimes called accent, which corresponds to, and expreses the sensations and emotions of the mind. The skill and success of a reader or speaker very much depend on the proper management of these tones. See GESTURE, PRONUNCIATION, AND VOICE.

Tone, Diazeutic. See DIAZEAUTIC.

TONEWANTO, in Geography, a town of New York, on a creek of the same name, which runs into the Niagara river, 15 miles E. from the falls of Niagara.

TONG, a city of China, of the second rank, in Pe-chae-li, situated on the river Pai-ho. The walls are substantially built of brick, and higher than the houses they inclose, which mostly are of wood. The city walls are washed by the river on one side, and defended by a broad wet ditch on the other. In the year 1793, there were no guns upon the ramparts, but a few swivels were placed upright near the gates. The principal streets were straight, paved with broad flag-tiles, with a raised foot-path on each side. An awning across the streets shaded them from the scorching heat of the sun's rays. Many, however, of the labouring people were naked from the waist upwards. Several extensive buildings contained grain of different kinds, of which it was said a provision for several years was always kept in store for the consumption of the capital. Most of the houses had shops or work-rooms in front; and an industry was displayed such as the neighbourhood of Peking was likely to excite. The outside of the shops was painted with a variety of lively colours, as well as gild, with rich engravings before them, and long labels, inviting customers. Among the chief articles exported to sale, were tea, filks, and porcelain, imported from the southward; and furs of different
different kinds, most of which were brought from Tartary. It was a pleasing circumstance to observe, also, among other goods, some English clothes, though, in no considerate quantities; 10 miles E. of Peking. N. lat. 40° 56'. E. long. 11^\circ 20'.—Allo, a city of China, of the second rank, in Kiang-nan, at the mouth of the Yang-tze River; 347 miles S.S.E. of Peking. N. lat. 38°. E. long. 120° 19'.

—Allo, a city of China, of the second rank, in Ho-nan; 490 miles S.S.W. of Peking. N. lat. 32° 48'. E. long. 111° 42'.—Allo, a city of China, of the second rank, in Chen-h, on the River Lo; 447 miles S.W. of Peking. N. lat. 34° 32'. E. long. 109° 30'.—Allo, a river of Benguela, which runs into the Atlantic, S. lat. 14° 25'.

TONGA ISLANDS, a cluster of islands in the South Pacific ocean, consisting of the island of Tonga, which gives name to the whole of the cluster called Hapae, and the island of Vavao. It is a part of the group to which captain Cook gave the name of Friendly islands, but he did not include in his chart Vavao or Vavau, which he did not visit; though this is the largest, and now comparatively the most important of all those belonging to the name Archipelago, which, in his time, were under the fame government, and still speak precisely the same language, and observe the same customs.

An account has been lately published from documents furnished by Mr. William Mariner, four years resident in those islands; 2 vols. 8vo. 1817. See FEEJEE, FRIENDLY HAPAE, TONGATABOO, VAVAU, &c.

TONGATABOO ISLAND, one of the Friendly islands in the South Pacific ocean, first discovered by Tafman, who called it Amsterdam; seen by captain Cook in the year 1773, and visited by him again in 1777. Tongataboo, or Tonga, is about sixty miles in circuit, somewhat oblong, though by much broader at the E. end; and its greatest length from E. to W. The south shore is straight, and consists of coral rocks, eight or ten feet high, terminating perpendicularly, except in some places, where it is interrupted by small sandy beaches; on which, at low water, a range of black rocks may be seen. The west end is not above five or six miles broad, but has a shore somewhat like that of the south side; whereas the whole north side is environed with shoals and islands, and the shore within them low and sandy. The east side or end is most probably like the south; as the shore begins to assume a rocky appearance towards the north-east point, though not above seven or eight feet high. The island may with the greatest propriety be called a low one, as the trees on the west part, where captain Cook lay at anchor, only appeared; and the only eminent part which can be seen from a ship, is the south-east point; though many gentle rising and declining grounds are observable by one who is afloat. The general appearance of the country is that of great want of fertility. At a distance the surface seems entirely clothed with trees of various sizes; some of which are very large. But above the red, the tall cocoa-palms always raised their tufted heads; and are a very considerable ornament to any country that produces them. The boogo, which is a species of fig, with narrow pointed leaves, is the largest tree of the island. The winds are, for the most part, from some point between south and east; and when moderate, are commonly attended with fine weather. The bays of the island, as far as it could be observed, is entirely a coral rock, which is the only fort that presents itself on the shore. Of cultivated fruits, the principal are plantains, of which they have fifteen different sorts or varieties; bread-fruit; two sorts of fruit found at Otaheite, and known there under the name of jambu and eceewe; the latter a kind of plum; and a vast number of thadocks, which however are found as often in a natural state as plaited.

The roots are yams, of which are two sorts; one black, and so large that it often weighs twenty or thirty pounds; the other white and long, seldom weighing a pound; a large root, called kappe; one not unlike our white potatoes, called mawhaha; the talo, or coccos of other places; and another named jejee. Besides great numbers of cocoa-nut trees, there are three other sorts of palms, two of which are very scarce. The only quadrupeds, besides hogs, are a few rats, and some dogs, which are not natives of the place, but produced from some left by captain Cook in the year 1773, and by others got from Feejee. Fowls, which are of a large breed, are domesticated here. Amongst the birds are parrots, somewhat smaller than the common grey ones, of an indifferent green on the back and wings, the tail blueish, and the rest of a footy or chocolate brown; parroquets not larger than a parrow, of a fine yellowish-green, with bright azure on the crown of the head, and the throat and belly red; besides another sort as large as a dove, with a blue crown and thighs, the throat and under part of the head crimson, as also part of the belly, and the reft a beautiful green; owls, cuckoos, king-fihers; and a bird of the thrush kind. The other hand birds are rails, fly-catchers, and three sorts of pigeons. Of water-fowl, and such as frequent the sea, are ducks, blue and white herons, tropic birds, noddy, and white terns. The only noxious or disgusting animals of the reptile or insect tribe are sea-snakes, scorpions, and centipedes. The insects amount to about fifty different sorts. The sea abounds with fish, though the variety is less than might be expected. The most common sorts are mullets, several sorts of parrot-fish, silver-fish, and alibores; some sharks, rays, pipe-fish, a sort of pike, and some curious devil-fish. The many reefs and shoals on the north side of the island, afford shelter for an endless variety of shell-fish; amongst which are many that are esteemed precious in Europe, such as the hammer-oyler, of which, however, none could be obtained entire; a large indented oyler and several others, but none of the common sort; pumosas, cones; a sort of gigantic cockle; found also in the East Indies; pearl-shell oylers, and many others. There are likewise several sorts of sea-eggs, and many fine flat-fish, besides a considerable variety of corals, amongst which are two red sorts, the one most elegantly branched, the other tubulous. And there is no less variety among the crabs and cray-fish, which are very numerous. To which may be added, several sorts of the sponge, the sea-hare, and the like. See TONGA. S. lat. 21° 56'. E. long. 185° 14'. Cook's Third Voyage, vol. i.

TONGATORE, a town of Hindooftan, in Golconda; 30 miles S.E. of Hyderabad.

TONGBLOW, a town of Burmah; 12 miles from Ravanongong.

TONGE, Nieuwe, a town of Holland, in the island of Overflakke; 3 miles S. of Sommerdyck.

TONGE, Oude, a town of Holland, in the island of Overflakke; 4 miles S.E. of Sommerdyck.

TONGELREP, a river of Brabant, which runs into the Dommel, near Eyndhoven.

TONGEREN, or TONGRES, a town of France, in the department of the Lower Meffe, late in the biciphoric of Liege. This town is ancient, and was formerly governed by dukes. The collegiate church of Tongres is very ancient; they say it was the first on this side the Alps, built by St. Materne, who was sent by St. Peter to preach the gospel in Lower Germany, and became the first bishop of Tongres; which was erected into a diocese. It has three parih churches, and several religious houses. The French, in the year 1677, committed a thousand sacrileges and informations.
lencies, without regard to age or sex, and set fire to the town-houses, the churches, several convents, and above 600 houses: and their fury was again repeated, under a pretence that the inhabitants had refused their contributions, and affrighted the troops of the allies; 9 miles N.N.W. of Peking.

TONGERLoo, a town of France, in the department of the Dyé; 9 miles N. of Aerchet.—Also, a river of France, which runs into the Meufe, 3 miles below Maesyck.

—Also, a town of France, in the department of the Lower Meufe; 4 miles N.W. of Stockem.

TONG-GIN, a city of China, of the first rank, in Kocie-choou, on the borders of Houquang. In the environs are gold and copper mines; 850 miles S.S.W. of Peking. N. lat. 27° 39'. E. long. 108° 27'.

TONGHO, a town of Birma, and capital of a province, strongly fortified. Here are manufactures of cotton cloth, and the environs produce the best beetle in the empire.

TONGKeeL, one of the Sooloo isalands. N. lat. 6° 2'. E. long. 121° 50'.

TONG-KIN-TSIN-FOU, a town of Corea; 48 miles W.S.W. of King-ki-tao.

TONG-LAI, a town of Corea; 70 miles S. of Koang-choeou.

TONG-LAN, a town of China, of the second rank, in Quang-fi; 1077 miles S.S.W. of Peking. N. lat. 24° 27'. E. long. 106° 26'.

TONGI-PATCHI, a town of Thibet; 30 miles N. of Oramtchi Hotun.

TONGOLORE, a town of Hindoostan, in the Carnatic; 10 miles S. of Ongole.

TONGOY, a river of Chili, which runs into the Pacific ocean, S. lat. 30° 10'.

TONG-PIN, a city of China, of the second rank, in Chan-tong, on the river Ta-tsin; 190 miles S. of Peking. N. lat. 36° 6'. E. long. 115° 56'.

TONGPOTRA, a town of Pegu; 50 miles S. of Lundley.

TONG-TCHANG, a city of China, of the first rank, in Chan-tong, on the grand canal; 212 miles S. of Peking. N. lat. 34° 24'. E. long. 115° 40'.

TONG-TCHOUEN, a city of China, of the second rank, in Se-tchuen; 720 miles S.W. of Peking. N. lat. 31° 6'. E. long. 114° 44'.—Also, a city of China, of the first rank, in Se-tchuen. This city is strongly fortified, and is called a military city, because the inhabitants are all foldiers; the profession defending from father to son. Besides their pay, they have the lands which surrounds the city. These troops are disbanded in time of peace, and to make them amends, they are placed in all the garrisons that are in the frontiers of the empire; 1000 miles S.W. of Peking. N. lat. 26° 20'. E. long. 103° 2'.

TONG-TCHUEN, a town of Corea; 85 miles E.N.E. of King-ki-tao.

TONG-TIN-HOU, a lake of China, in the province of Hou-ouang, more than 80 leagues in circumference.

TONG TREE, in Rural Economy, a term applied to the pole of an ox-cart, or that of a waggon, and perhaps some other sorts of carriages.

TONGUE, Lingua, in Anatomy, an oblong member, whose form and situation are sufficiently known, and whose use is to be the organ of taste, and the principal instrument of speech and deglutition. See Deglutition.

The upper side of the tongue is covered with a papillary nervous substance, over which are spread two membranes. The outer of these membranes is pretty thick, and full of papillae, of a pyramidal figure, especially towards the tip, which papillae stand pointing towards the root of the tongue in a bending posture, which makes their figure to be concavo-convex. These, apices, or papillae, are so very minute and slender in men, that they make the coat appear on the upper part villous, especially as they approach nearer to the root. The figure of the papilla, in human tongues, is not so plainly discernible to the naked eye as to need the microscope. In brutes they are generally larger, thicker, and more conspicuous; and in some almost cartilaginous, as may be felt in the tongues of cats and oxen, but more feebly in lions. On the upper side, at a little distance from the tip, this membrane becomes thin, smooth, and glibrous, and, as it were, polished by the lower parts of the mouth on which it slides.

Under this lies a thin, soft, reticulated kind of coat, punched through with innumerable holes, and always lined with a thick and white, or yellowish mucus. This membrane is so exceedingly tender, and full of mucus, that it is not to be examined by the naked eye, unless boiled; by which it grows tough, and easily separable from the external membrane, and from the nervous part of the tongue, which lies immediately under it. After boiling, it appears like a kind of gauze, between whose threads innumerable holes appear, through which the apices of the papillary body underneath it are exerted. This membrane on the upper side, next the outward, appears white, with a cast towards yellow, but is black on the side next the tongue.

Many authors do not allow this to be a membrane, and will only have it to be a mucus hardened by boiling; but since it has so much of the resemblance of a membrane, and that authors agree in allowing two membranes to the tongue, Dr. Drake does not scruple to number it among them, since there does not appear to be any other second membrane; reckoning, with Malpighi, the smooth part under the tongue a part of the outer membrane; some, however, have considered it as a continuation of a different membrane, which covers that of a papillary texture.

Immediately under this appears a nervous papillary body, spreading itself to a moderate thickenss over the whole surface of the tongue. This body, on the under side, is every where level and smooth, except in some few places, where it is connected to the subjacent mucous part from some nervous twigs which it sends into it. Malpighi distinguishes the papilla, which make the principal part hereof, into three kinds, from their different magnitudes and figures when observed with the microscope; of which three, lying on the sides and tip are very singular, resembling little round pyramids, with globes on their tips like the horns of snails. All these papillae, which are the immediate organs of tasting, send their apices, or extremities, through the mucous membrane into the pyramidal papilla of the outer membrane, which are hollow to receive them, and seem to be nothing else but a kind of caves to defend these nervous papillae from injuries, which the farts and aperities of those bodies which we might take into our mouths might do them. See Tasting.

However necessary an organ the tongue be in speech, &c. yet infallacies have occurred, in which persons, who have lost their tongues, have spoken distinctly.


Another occurs in Lambert's Memoirs, and another in the Memoirs of the Academy of Sciences.

To the infallacies briefly mentioned above, we may add the following account of a man at Montagu, in the Bas Poitou, who being seïted with the small-pox in his fifth or
or fith year, loft his whole tongue by gangrene, or putrefaction; yet, notwithstanding, performed in perfection the five actions belonging to the tongue, viz. speaking, talking, spitting, chewing, and swallowing; nature having, with infinite artifice, given a new conformation to the mouth, proper to supply the want of the lost organ. See Jac. Rollandi Agglotomographia, five Descriptionis Oris fine Lingua quod perfecte loquitur et rhinias suas Functiones naturaliter exercet; first published in French at Saumur, in 1636, translated into Latin by Car. Ruwygerus, and published in the Ephem. German. D. an. 3.

For speech, instead of the ordinary provision, the little fleshly part of the tongue remaining was inflamed in the middle towards the palate, the teeth inverted, and long inwards, the mucous buccinatores easily contracting between the dents molares. In fine, there was a disposition in all the organs to produce speech without a tongue; for the breath lifting at the oval aperture of the larynx, was farther broken, and rendered vocal by the inflation of the fleshly body, the motion of the lips, the retraction of the buccinatores, the tremulous agitation of the uvula, and the retraction of the lower jaw. Lastly, by the inversion of the teeth, the depression of the palate, the abundance of saliva, and the capacity of the mouth, the sound was still farther modified and determined, so as to render it articulate. Habit, too, and the repeated attempts to speak at an age when the parts were easily flexible, had contributed greatly to the distinctness of it.

For talking, it is evident from this, as well as other considerations, that the tongue is not the only organ of it, but that the palate is also a part of this sense. For chewing, the office of turning the meat in the mouth was here performed by the lips and cheeks, the mucous of which repelled towards the maxillares such parts as in mastication might fall from one side to the other. For the first morfel he took, he could only chew on that side into which he put it with his hand; the second he put in like manner on the other side, and thus varied and supplied each alternately. For swallowing, the gravity of the food contributed something to this, which he farther promoted by stretching out his neck, inclining his head, and drawing back the buccinatoris within his teeth; all which were seceded by the mouth and fauces being well moistened with plenty of saliva.

In effect, divers animals, as the tortoise and the crocodile, &c. swallow without any tongue; and fish, though their tongue is fixed immovable to their palate. For spitting, it was performed by the lips, aided by the internal contraction of the mouth, and the retraction of the buccinatores over the grinders.

Rolland's instance was singular at that time, but a parallel one has been since observed in a girl at Lisbon, fifteen years old; of which an account was given, in 1718, to the Royal Academy of Sciences, by M. de Juffieu. Upon inspecting the mouth of this girl, there appeared nothing in all that part ordinarily possessed by the tongue, but a little eminence in form of a papilla, between three and four lines high, in the middle of her mouth, scarcely perceivable by the eye. Upon pressing this with the finger, a kind of motion of contraction and dilatation was perceived in it, which showed, that though the tongue was wanting, the muscles of which it was formed, and which were defined to give it motion, were nevertheless there. With the help of these she spoke as distinctly and easily as if nothing had been wanting: she distinguished tasts like other people. For mastication, it was chiefly effected by the motion of the lower jaw, which she drew nearer to, or farther from, the grinders of the upper, under which the food to be chewed was. In this action she sometimes made use of her fingers, but much more in the action of swallowing, in order to protrude the masticated food towards the orifice of the cesophagus. For drinking, she performed it like other people, excepting the attention she employed to prevent the liquor going down too fast; in order to which she kept her head a little inclined forwards. Lastly, the action of spitting was supplied by the muscles of the papilla, which filled the lower part of her mouth; these rising almost to a level with the teeth of the lower jaw, and the buccinatores approaching towards both jaws, expressed the saliva, and conducted it to the sphincter of the lips, from whence the air, driven with violence from the larynx, served as a vehicle to expel it out of the mouth. Mem. de l'Acad. Scient. ann. 1718, p. 6—16. Juffieu, loc. cit. p. 7, seq.

Dr. Mortimer, from a MS. account of the life of the Rev. Mr. Henry Wharton, chaplain to archbishop Sancroft, informs us, that he was born with two tongues. Phil. Trans. vol. xiv. p. 252.

**TONGUE.**

**Injuries and Disfigure of.** Wounds of the tongue have generally been divided, by writers on Surgery, into longitudinal and transverse. The former rarely happen, and seldom demand any but ordinary treatment. The same may be said of punctured wounds of this organ; cases which are occasionally met with in practice.

The most frequent wounds of the tongue are those which are transverse. They are hardly ever produced by outward means; but usually by the teeth, when the lower jaw is forcibly and forcibly brought against the upper one, while the tongue is out of the mouth, as sometimes happens in epilepsy and falls upon the chin. In this way, transverse wounds of considerable extent frequently happen, almost separating, in some instances, the apex from the body of the tongue. In such cases, the injury may easily be converted into a fort of cleft, which may remain for ever afterwards, and more or less interfere with the functions of the organ. This disagreable consequence is more likely to happen, when no care is taken to keep the opposite sides of the wound in proper contact, and hinder them from becoming distant from each other.

Hence, certain writers on surgery have recommended all wounds of the tongue to be immediately closed with a future; and Richter, though by no means a constant advocate for this method, is candid enough to allow, that it has succeeded in the bell manner, even in cases where the tongue was bitten nearly through. Anfanggr. der Wundartz. b. iii. p. 24.

The application of a future to the tongue being attended with some pain and difficulty, a very simple bandage has been proposed for uniting transverse wounds of this part. (Pibrae, Mem. de l'Acad. de Chirurgie, tom. ix. p. 22—23.) Richter maintains, however, that the invention referred to does not answer expectation. The main portion of it is a little fort of bag, in which the fore part of the tongue is confined. Thus all motions of this organ forwards, or laterally, may be effectually prevented; but the patient is not deprived of the power of drawing it backward, that very action, which has a direct tendency to make the sides of a transverse wound separate from each other. In some cases, indeed, as Richter observes, the apparatus seems rather to do harm. Children, to whom it proves exceedingly irksome, are made reflect at it, so that they keep moving their tongue and jaw about, to the great irritation and disturbance of the wound.

Richter further objects to Pibrae's bandage, that it is decidedly unnecessary; for, such motions of the tongue, as it directly refrains, namely, those forwards or to either side,
TONGUE.

fide, may be hindered by applying a bandage to the jaw, and making the patient refrain from talking and mastication. The same author affirms, that such treatment has answered as well as could be desired, in numerous cases, some of which were large transverse wounds in reflexes and unmanageable children. During the treatment, however, the patient is to be allowed only liquid nourishment, which must be imbibed through a tube.

Perhaps, however, on the whole, the propriety of employing a future must depend entirely on considerations of the following kind. When the transverse wound is deep, and extends quite across the dorsum of the tongue; when it is situated towards the apex, and is conveniently within reach; and when the patient is uncontrollable, and cannot be made to keep the tongue and lower jaw quiet; a future may be advantageous. On the other hand, when the wound is at the back part of the tongue, (a cafe by the bye that is unfrequent,) and a future must be difficult of application; when the wound is trivial, likely to heal of itself, and there is no risk of its occasioning any material cleft in the part; and when the patient is docile, and attentive to the advice given him; the most judicious practice is to apply such a bandage as is recommended for the fractured jaw, and to forbid all motion of the tongue and lower jaw; by speaking, masticating, &c. nothing but liquid food being allowed to be drunk through a tube.

If the wound should be so deep, as almost to separate the anterior part of the tongue from the root of this organ, the remaining connection is not to be divided; but an endeavour made to bring about an union. There are numerous cafes on record, encouraging the practitioner to expect the best consequences from the attempt. Richter's Anfangsgr. der Wundartzn. b. iv. p. 26.

With regard to other circumstances, relating to wounds of the tongue, the treatment of these cafes does not differ from that of wounds in general.

Bleeding from the Tongue.—An hemorrhage from the raninal vesels sometimes follows accidental wounds, and surgical operations on the tongue. When it is an artery that bleeds, the accident may prove dangerous, and even fatal, espeially in children, who by moving the tongue and jaw about, and continually sucking, promote the hemorrhage, and render the adoption of the measure necessary for its suppression extremely difficult. As, in these cafes, a ligature, compression, and styptics, hardly admit of being applied, the bleeding cannot be stopped, without much trouble. Whether the raninal arteries can be tied in the manner suggested below, remains to be proved; but, certainly, they are rather too far out of reach to be tied in the common way. Nor can compression, as ordinarily performed, be trusted, since it operates against soft yielding parts, and not upon any fixed point. Strong styptics, even were they deemed worthy of trial, could not well be employed, since they would be apt to mix with the saliva, and be swallowed. Yet, there are some means, by which the most perilous bleedings of this fort have been stopped. Among the most celebrated of these last methods is the actual cautery, which is preferred by several of the continental surgeons, and may, perhaps, in this solitary instance, seem almost justifiable to British surgeons, averse as they properly are to this barbarous practice.

Another plan is that of directing an assistant to keep a compres on the bleeding vesels, as long as necessary, with his finger; while, with his thumb, he takes care to make counterpressure under the jaw. M. Jourdain stopped a considerable hemorrhage from the raninal vesels, by laying a piece of ice under the tongue. M. Petit was the inventor of an apparatus for stopping such bleedings, which is at once simple, ingenious, and effectual. The surgeon is to get a piece of birch, and cut it through below the place where two branches of equal fize unite. It is to be made to resemble a fort of fork, the prongs of which are to be about eight lines long, and the handle four. It is then to be covered all over with linen, and put under the tongue in such a way, that the end of the handle is to rest against the middle of the concavity of the arch of the jaw, while the prongs embrace the frenum, and compress the bleeding vesels. The middle of a roller is next to be applied to the dorsum of the tongue, as far back as possible; and the ends, after croffing each other under the chin, are to be pinned to the child's night-cap.

If a surgeon were to be averse to these plans, or find them unaually, there is yet one resource left, namely, that of cutting down to, and tying the trunk of the lingual artery, juft where it passes over the coruu of the os hyoïdes.

Hemorrhage from the raninal vesels occasionally arises quite independently of a wound. In one such example, the bleeding proceeded from a varicoles vesel under the tongue, and was effectually stopped with the cautery. See Default's Journ. de Chirurg.

Dangerous Enlargement of the Tongue from Inflammation.—Sometimes when this organ is inflamed, it swells so prodigiously, that it protrudes between the teeth, entirely fills the cavity of the mouth, and obstructions speech, deglutition, and even respiration. In such a cafe, the most prompt affittance is demanded. Ordinary evacuations of blood, and other antiphlogistic measures, here seldom bring relief with sufficient celerity. According to surgical authors, the most certain plan consists in making two longitudinal cuts along the edges of the dorsum of the tongue, from one to two inches in length. A copious bleeding generally follows, which soon brings about a diminution of the swelling. No troublesome consequences are to be apprehended from such incisions, which heal with ease, and scarcely leave any fear behind. De la Malle, Mem. de l'Acad. de Chir. tom. v.

Jourdain succeeded in affording prompt relief, by taking blood from one of the raninal veins. This method seems liable to no objection, except perhaps that of being difficult, when the tongue is enormously swelled. Traitè des Maladies de la Bouche, &c.

In one example, the disease refilled every means until a blister was applied to the throat. Richter's Anfangsgr. band. iv. p. 29.

Some inflammatians of the tongue have been observed to originate from the lodgement of foreign bodies in it, which ought to be extricated; as, for instance, a fish-bone, or a needle. (Jourdain, Traitè des Mal. de la Bouche, &c.) Other cafes have arisen from the injudicious employment of mercury, and the excitement of a fudden and inmoderate salivation. Many examples are connected with violent inflammation of the parts about the throat.

Sometimes inflammatians of the tongue terminate in suppuration. Such absceses rarely admit of being opened, and hardly allow the use of any means, except emollient gargles.

Gases have occurred, in which inflammation of the tongue has induced mortification, and the loss of the greater part of this organ. The treatment of such instances must conform to the general rules delivered in the article Gan-grene.

When, in consequence of any enlargement of the tongue, or other disease in the mouth, the necessary food and medicines are, for a considerable time, prevented from being taken, they may be injected into the stomach through an elas
elastick catheter, which is to be passed through one of the
nostrils into the oesophagus. It has been recommended
to have the outer end of the instrument to turn upward out of
the nostril, and shaped like a funnel, whereby it is suppos
ed fluids might be more conveniently introduced. (Libouton,
Journal of the Medical, tom. xxxiv.) But we do not consider
this any material improvement, since all liquids may be easily
injected with an elastick gum syringe, such as is used for in
jecting hydroceles, without having the external end of the
catheter made in the manner above suggested.

Ucers, Induration, and Tumour of the Tongue.—Ucers
on the tongue, of an exceedingly painful, obliternar, and
malignant looking nature, are sometimes produced by the
sharp or rough edge of a tooth. This mechanical kind of
cause is easily detected on examination with the finger. If
the tooth be found, the projection or roughness must be
filed off; if it be curious, the butt plan is to extract it.
When these objects are accomplished, the fore usually heals
without further trouble.

Some very obstinate ulcers, which originate on the tongue,
and are connected with disorder of the digestive organs, may
be cured by a long perfeverance in the use of the anim. tart.
exhibited alternately in small doses, and then in larger ones,
so as to excite vomiting.

Ulcers, deferring the epithets malignant and cancerous,
not unfrequently form on the tongue. Sometimes the mal-
lady, in its most incipient state, appears as a fore. Some-
times a circumcised moveable, or immovable, ferricous
swelling is fril observable, which gradually becomes pain
ful, and ulcerates. In other instances, there is, in the be
ginning, only an induration in the subftance of the tongue,
without the slightest appearance of any swelling. The
ulcers, under consideration, are always surrounded by hard
ness. They may make their first appearance either at the
edges or at the apex of the tongue. In certain cases, the
whole, or a large portion, of this organ is covered with nu
merous small ferricous tubercles, which gradually fall into
a state of ulceration. These we have seen greatly dimi
nifhed by a gentle course of mercury. All the medicines,
tried in other cases of cancer, may be exhibited in the pre
rent ones; but, on the whole, the timely employment of
the knife merits the most confidence.

However, the following kinds of cafes have yielded to
particular remedies.

A malignant exceedingly painful ulcer on the tongue,
covered with a good deal of inflammatory hardness, has
been cured by the continued internal use of opium. The
dose is to be gradually augmented; patients are flated to
have taken, at eight, eighteen grains in one day.

One species of malignant ulcer yields to the long con
tinued exhibition of tarret emetic. The doses must be in
creased, in proportion to the time which elapses from the
fril taking of the medicine.

Very malicious and unyielding ulcers on the tongue are
found to have been cured by repeatedly applying leeches to
the under surface of this organ. Med. Commen. vol. ii.

It would be inexcezible to pass over in silence such ill
conditioned ulcers of the tongue, as originate during violent
salinations. Sometimes similar ulcers, produced by the fame
cause, take place, at the same time, on the tonsils; and, in
this circumstance, inexperienced surgeons, or mistaken prac
titioners, who are blinded with the fear of syphilis, are very
apt to suppose the fores to be venereal ones. This error
leads to the frer use of mercury: the fores frequently
slough; and the patient's health becoming greatly deranged,
he is thrown into a state of great peril. In this cafe, it is
hardly necessary to observe, that the use of mercury must
be immediately omitted, and the mouth very frequently
washed with a solution of alun.

Violent inflammations, followed by ulcerations of this
fort, are particularly apt to occur, when patients catch
cold, while they are under the influence of mercury.
For the removal of a cancerous portion of the tongue, a
biilory is the best instrument; and the patient's mouth
should be kept open during the operation, by the interpo
sition of something between the teeth. The hemorrhage
is generally what is moft apprehended: but we have instances
related of large portions, and even of the anterior half of
the tongue, being amputated, and of the bleeding being
easily suppressed, either by the actual cautery, or fome of
the ordinary means for the suppression of hemorrhage. It
appears to us, that a tolerably dexterous man might tie the
mouth of an artery in this situation, with the affifance of
two pair of forceps to tighten the ligature, when the noif
has been put over the tenaculum round the bleeding point.
Certainly, cancerous ulcers of the tongue may have ad
vanced to fuch a degree, that an operation cannot be pru
dently undertaken. The bleeding would be a very fero
gious objection; the whole diftempor of the tongue itself might
not be removable; and the contaminated flate of the ad
jacent lymphatic glands below the jaw, usually existing in
this advanced flate of the malady, would, according to re
ceived opinions, render a radical cure quite impracticable.

When the disease is not in the vicinity of the apex of
the tongue, the operator may find it difficult to draw the part
sufficiently forwards, and keep it in this position. In this
circumstance, surgical authors recommend the employment
of a pair of forceps for the purpose, the blades of which are
to be covered with rag. Should this instrument be found
inadequate, they advise the surgeon to use a pair of forceps,
the blades of which terminate in two short double hooks.
As being painful, one should always avoid, if poible, the
employment of fuch an instrument.

Here, as in all other cancerous cafes, it is the duty of the
surgeon to take care that no point, duped of participating
in the disease, be left behind. Unlesfs this maxim
be attended to, the operation will mostly be followed by a
relapse.

Abroad, surgeons have sometimes effected a cure by ap
plying the cautery, notwithstanding the wound after the
operation had put on an unhealthy and fonguous appearance.
(Journ. de Méd. tom. xviii.) In this country, practi
tioners might hope for similar successes from the cautious em
ployment of cautic; for the revival of the cautery, under
any circumstances, is an idea now almost intolerable to every
Britifh practitioner.

After the excision of a difeased portion of the tongue,
local applications cannot be very well used; nor are they
in general neccessary, when the patient moves the part as
little as poible, and avoids putting stimulating food and
liquids into his mouth.

Cancerous portions of the tongue may also be extirpated,
by pafling a double ligature through this organ, and firmly
tying one part of the ligature over each side of it.

This plan must be infinitely more painful, than the re
moval of the difeased part with a knife. To the latter
method, the hemorrhage is the only objection; and, not
withstanding all that has been faid, we think no surgeon
ought to venture to cut away a difeased tongue, without
having firft made up his mind respecting what method should
be adopted for stopping the bleeding.

When much of the tongue has been loft, there certainly
is reason to expect, that its functions will afterwards be
performed in a very imperfect manner. However, there are
are on record several examples, in which the greater part of this organ was lost, and yet the patients retained the faculties of tailing, maculating, swallowing, and articulating words, with considerable perfection. See Mem. Physiolog. &c. sur la Langue par M. Louis in Mem. de l'Acad. de Chr. tom. xiv.

The removal of scirrhous and farcomatous tumours of the tongue may be most conveniently accomplished with a scalpel and a tenaculum. Encysted swellings of this organ are generally of the melanier's kind, and ought, if possible, to be dissected out, without opening the cyst at all.

Authors relate examples, in which the tongue has been of extraordinary magnitude, either in consequence of original malformation, or a peculiar sort of disease. Excepting the deformity, arising from the projection of the part out of the mouth, some of these patients experienced no particular inconvenience, as they could speak, masticate, and swallow tolerably well. Under such circumstances, the removal of the redundant portion would not be advisable; but if the disfigurement were combined with much inconvenience, the operation would be proper, especially as the cut part would be left forward in the mouth, that the bleeding vessels could be tied. First Lines of the Practice of Surgery, by S. Cooper, edit. 3.

Tongue-grafting. See Engrafting.

Tongue-tied, the popular name for a disfigurement of the tongue in children, when it is tied down too close to the bottom of the mouth, by a ligament connected all along its middle and called its frenulum, which requires to be divided to give the tongue its proper motion.

This is sometimes the case in adults, but oftener in children, who cannot then exert their tongues to suck. This is, however, by no means so common as the women usually imagine; not so much as one child in a thousand being afflicted with it; nor is the operation in cutting it of little consequence, since often bad accidents follow it, and sometimes the loss of a child's life. When the infant can put its tongue out of its mouth, the frenulum wants no incision; but when the tongue cannot be extended beyond the teeth, the operation is necessary.

To perform this, the end of the tongue should be covered with a linen rag, and held with the fingers to prevent its slipping, and the ligament of the tongue running between the upper and lower lip, and the frenulum, is then divided, to be tied by a pair of obtuse pointed scissors, till it gives room enough for sucking or speaking; but in this doing, great care must be taken not to wound the frenulum, or the proper veins and arteries of the tongue; for children have been known to perish upon the spot from cutting the proper veins. Midwives often tear this ligament with their fingers as soon as the child is born; but this is a dangerous practice. Heiffer. See Infants.

Tongue of Fish. All fish have either a perfect tongue, or the rudiments of one, in their mouth; but this organ is very different in the various species, in its figure, mobility, and other qualities and properties; as to the figure, it is in some pointed before, as in the gudgeon; others it is round in this part, as the perch and char; and in others it is somewhat bifid, as in the pike. In some it is smooth on the upper part, as in the goby, cyprinus, and Mackarel; in others it is rough and dentated in this part, as in the salmon, mullet, &c. In many fish, the tongue is immovable, adhering firmly to the bottom of the mouth, as in the perch, cyprinus, and, indeed, in the greater part of fish; in others it is loose, as in the whale.

In the cetaceous fish, the tongue being loose, as in quadrupeds, it is used by the animal in the same manner; but in other fishes it is of no use in the moving of the food about in the mouth, nor is it the genuine organ of taste, being in many a cartilaginous substance, and therefore not proper for receiving the notices of that sense. The principal use of the tongue in these fishes seems to be in its serving as an afflignant organ of swallowing, its being more elevated than the other parts of the mouth, rendering it fit for the toasting of the food down the throat. The true use of the tongue in these fish which have it dentated is, that it serves to retain the prey from running out of the mouth, and afterwards in the swallowing of it: what readers them more fit for this use, is, that they have always the prickles turning inwards. It is the opinion of Mr. Ray, that the tongues of the cartilaginous kinds have some fenome of taste, and this is more probable, than that the more hard and rigid ones should have any such fenome. Arctedi de Piscib. See Fish.

Tongue of a Mufle. What is vulgarly called the tongue in this fish from its shape, is truly an organ, by means of which it spins a sort of threads in the manner of spiders or caterpillars, to fix itself to the rocks by. See Muscle.

Tongue, in the Mange. The aid of the tongue or voice, is a sort of agreeable clackling, or a certain sound formed by the cavalier, in striking his tongue against the roof of his mouth, when he means to amuse the horse, and fustain him, and make him work well in the manage. See Aip.

Tongue, To swallow the. A horse is said to draw in, or swallow his tongue, when he turns it down his throat, which makes him wheeze as if he were short-winded. This fact is cured by giving him a bit with a liberty for the tongue.

Tongue, Serpent', in Botany. See Adder's Tongue.

Tongues, Serpent', in Natural History. See Serpent's Tongues, and Glossoptera.

Tongue, in Masting, the taper part at the lower end of a spindle, or of a spear. In Rigging, a short piece of rope spliced into the upper part of standing-backstays, &c. to the size of the top-mast heads; it is served over with spun yarn, and its use is to keep them open to the size of the mast heads.

Tongues, Confusion of. See Confusion.

Tongue, in Geography, a town of Scotland, on the north coast of the county of Sutherland, situated on a bay called the Kyle of Tongue. N. lat. 58° 27'. W. long. 4° 14'.

Tongue Island, a small island in the Mergui Archipelago. N. lat. 9° 52'.

Tonguey. See TONGUEY.

TONGUNEMW, a town of Birmah; 35 miles S. of Raynangong.

TONGURAHUA, a town of South America, in the province of Quito; 20 miles E.N.E. of Riobamba.

TONGUSY TARTARS. See Tongues.

TONGUSY, a lake of Norway, in the province of Aggerhus; 55 miles N.W. of Christiania.

TONIATO, a small island in the St. Laurence. N. lat. 44° 38'. W. long. 75° 53'.

Tonic, tonik, formed from touna, to stretch, in Medicine, is applied to a certain motion of the muscles, in which the fibres being extended, continue their extension in such manner, as that the part seems immovable, though in reality it be in motion. See Muscle.

Such is the case of a man floundering, of birds planing or swimming through the air, &c. Galen says, that the muscles act even when at rest; for after having made any contraction to fix themselves in a certain state or disposition, the preferring of that contraction is what we call the tonic motion.

Tonic, in Music. See Genus.

Tonic Accent. See Accent.

TONICAL Echo. See Echo.
TONICHI, in Geography, a town of New Mexico, in the province of Hiaqui; 25 miles N. of Riochco.

TONIKARY, an island in the East Indian ocean, near the north coast of Celebes. N. lat. 5° 31'. E. long. 99° 31'.

TONINA, in Botany, an unexplained name of Aublet's. See HYPHYDDIA.

TONIQUE, in French Music, is equal to key-note in English music, or the principal found of a composition which generates all the rest.

TONISKA, in Geography, a town of Ruffia, in the government of Irkutsk; 40 miles E.S.E. of Stretenik.

TONKER. See LASSA.

TONKER-SONG, a town of Thibet; 504 miles E. of Laffa. N. lat. 25° 57'. E. long. 90° 46'.

TONKEY, in Agriculture, a term provincially made use of to signify short-legged and deep-caracalised, as is the case in the Chinese breed of swine. It is consequently a term sometimes applied to that breed of swine. See SWINE.

TONKIN, in Geography. See TONGIN.

TONNA. See TUNNA.

TONNAGE, the weight of goods carried in a boat, also, the rates, tons, or fums per ton, per mile, or otherwise, which are payable to the proprietors of the navigation for the liberty of using the same. See TUNNAGE.

TONNAGE, Duty of. See DUTY.

TONNAGE, in Ship-building, the cubic content, or burden, of a ship in tons; which is commonly estimated by a given rule not answering the above purpose, but producing what is denominated the builder's tonnage. The real burden a ship is to carry, when brought down in the water to the load-draught of water intended in the constitution, may be nearly found by the rules given in the article Ship-building (Tonnage or Burthen). See also Burden of a Ship.

The word is derived from a ton, or weight of water equal to 2000 pounds; for it appears that, anciently, a cubic foot of water, weighing 621 pounds, was assumed as a general standard for liquids. This cubic foot, multiplied by 32, gives 2000, the original weight of a ton. Hence eight cubic feet of water made a hoghead, and four hogheads a ton, in capacity and denomination as well as weight.

TONNAGHAN, or DONAGHAN, in Geography, a river of Canada which runs into lake Superior, on the side of which is found a quantity of virgin copper.

TONNAY-BOITONNE, a town of France, in the department of the Lower Charente; 10 miles W. of Rochfort.

TONNAY-CHARENTE, a town of France, in the department of the Lower Charente; 3 miles E. of Rochfort.

TONNEAU, in Commerce, a measure of capacity in many parts of Germany, both for wine and dry commodities. The tonneau, as a measure for corn, contains 8 shecfafls, or 32 vier- tels, 100 of which tonneaus yield about 49 English quarters. A tonneau of beer contains 128 quarters, or 25 English beer gallons. At Koniglberg, a lait contains 24 tonnes, 563 new shecfafls, 60 old ditto, 240 vier- tels, or 960 metzins. A new shecfafl contains 3152 English cubic inches, and 43 shecfafls = 63 English bushels nearly, and 20 Koniglberg laits = 207 English quarters. The lait of Spanish and French salt is reckoned at 18 tonnes, or 6600 lbs.; the lait of herrings at 12 tonnes; a lait of green marbled soap at 3 tonnes, or 12 vier- tels. See TUNNA.

TONNEAU, a corn measure in some parts of France.—Also, a weight of 2000 lbs. French, by which the burden of ships is reckoned.—Also, a general term in France for a call.

TONNEINS, in Geography, a town of France, and principal place of a district, in the department of the Lot and Garonne; 132 3/4 miles S.E. of Bordeaux. N. lat. 4° 23'. E. long. 0° 24'.

TONNERRE, a town of France, and principal place of a district, in the department of the Yonne; 18 miles N.E. of Auxerre. N. lat. 47° 51'. E. long. 4° 31'.

TONNERRE, a mountain of France, which gives name to a department; 15 miles N.W. of Worms.

TONNING. See TUNNING.

TONNINGEN, in Geography, a seaport town of Denmark, in the duchy of Slefwick, situated on a peninsula, formed by the Eider. In the year 1613, the harbour was enlarged and repaired at a considerable expense; but in 1675, during the war with Sweden, the duke, purveyor to the treaty of Rendelberg, was obliged to cede this town to the king, who caused the fortifications of it to be demolished. But when the duke recovered the town in the year 1679, they were repaired, and improved with additional works; so that when king Frederick IV. besieged it, he was not able to make himself master of it. In the year 1713, the Swedes were obliged to surrender themselves prisoners of war to Denmark; and in the year 1714, the king having got possession of the town, the fortifications were demolished a second time. Tonningen has been in a defences condition ever since that time. It had once a noble castle, but that was likewise demolished by the king's orders, in the year 1734; 57 miles N.N.W. of Hamburg. N. lat. 54° 23'. E. long. 6° 48'.

TONNOGRA, one of the smaller Friendly islands; 11 miles S. of Annamooka.

TONO, a town of Chili; 70 miles S. of St. Yago de la Nouvelle Eftromadura.

TONON. See TIONON.

TONORIUM, in Ancient History. Roman orators, though not constantly accompanied by a flute, had their voices frequently regulated by an instrument which Quintilian calls a tonorium, Cicero, a sylala, and Plutarch, συλαία, or syrinx, which is the same thing; and this instrument served as a kind of pitch-pipe. Both Cicero (De Orat. lib. iii.) and Plutarch (In Vit. C. Gracch.) relate the well-known story of the voice of the furious tribune, Caio Gracchus, being brought down to its natural pitch, after he had lost it in a transport of passion, by means of a fervant placed behind him with one of these instruments. Cicero tells us that this tibiae, with his flapper, qui flectet occulta post isum, and was not seen by the people, does not confine his employment to appeasing the passion of his master; he was, upon occasion, to incite it: "Qui inlunet celeriter eum tonum, quo illum aut remit- tum exsaturat, aut contentione vocatium." It is not easy, however, to conceive of what use this expedient could be, unless rhetorical tones were regulated by those of music.

TONOS, a word used by Hippocrates, to express in general any nerve, whether arising from the brain or spinal marrow. It is also used to express a tenion in any part.

TONOSA, in Ancient Geography, a town of Asia, situated on the river Mesus, W. of Godaia.

TONOSA, or TONOS, a town of Asia, in Cappadocia, on the route from Sebaste to Coeuflon, between Sebaste and Aria- ratia. Anton. Hin.

TONOUWAH, in Geography, a kingdom of Africa, S. of the Niger, the capital of which, Affentai (the Affenté of D'Anville), situated midway between Kahanee, a dependency of the kingdom of Tonouwa, and the sea-coast; that is, about eighteen days' journey from each. It is said that there is no communication between this coast (probably the Gold Coast) and the country of Gorjah; as the king of Affentai,
Assentai, who possesses the intervening space, prohibits his inland neighbours from passing through his country. On the other hand, a gentleman (Mr. Norris) who resided many years in Whydah, says, that there are other states (that is, the Fantees, and their confederates) lying between Assentai and the sea; and that the Assentais have often attempted, but without success, to open a communication with the coast, from that part of the Niger which forms the southern limit of the great empire of Caffina. In the kingdom of Tonouwah, which is said to border on the coast of the Christians, and of which, as we have said, Assentai, or Assenté, is the capital, a succession of hills, among which are mountains of a stupendous height, diversifies, or constitutes the general face of the country. Some of the lands are cleared; but other districts are still incumbered with woods of a vast extent; and though for the most part the highlands are patured by innumerable flocks of sheep, and by herds of cows and goats, and the vales exhibit the captivating view of successive villages, encompassed with corn and rice, and fruits of various kinds, yet these are places of native fertility and eternal barrenness.

TONG, or TUNQUIN, signify ing "the Court of the East," because when this country was a province of China, it was the imperial residence; though, with regard to its position with respect to China, it should rather be called "the Court of the West," and denominated by the natives An-nam, Anam, or Ngan-nam, i.e. the repose of the fourth, is separated from Cochinchina by a small river, and may now be considered as incorporated with it by conquest. It is bounded on the E. and N. by China, on the S. by Cochinchina, on the W. by the kingdoms of Laos and Boos, the latter being unknown to geographers. Tonquin may be regarded as consisting of eleven provinces; that of the North being the largest; its boundaries being Laos on the W., China on the N. and E., and Boos on the N.W. With regard to its aspect and surface, it may be divided into two portions, the mountains and the plain. Towards China, Cochinchina, and Laos, the mountains are extensive, but neither rocky nor precipitous; and they are partly covered with forests. In this part are found mines of gold, silver, and iron, and also of copper, which is in high estimation. The lower part of Tonquin much resembles Holland, being partly land and partly water, and intersected by canals and dykes, and also by numerous rivers and lakes. The province denominated "of the West" is watered by seven great rivers, which unite about fifteen leagues above the royal city, and form a kind of sea, or large lake, which sends out various branches. The southern part of the kingdom, though in the torrid zone, is surrounded with waters covered with boats. A navigable river, called Songkoy, traverses the kingdom from N. to S., and receives various streams, which are also partly navigable; and canals which serve for the cultivation of rice are numerous. The rivers of Tonquin rise from the mountains of Yunnan, and in the rainy season, from May to September, inundate the adjacent country. The chief of these is the Holi Kian, which, after receiving the Li-fien, passes by Kecho the capital. The population of this country is said to be considerable. Although it has few towns, it has several villages which contain many inhabitants. The capital of the kingdom and royal residence is Kecho, Kecho, or Kefho (which see). The next remarkable town is Hean, containing about 2000 houses, situated on the right bank of the river, at the distance of four or five days from its entrance into the sea. Formerly the French had a factory in this place, and the trade was considerable. (See HEAN.) At the distance of five or six leagues from the mouth of the river is another town, called Domea, much less than Hean. These towns, as well as most of the villages, and some housetts belonging to persons of wealth, are surrounded with live hedges of bamboo; and to the housetts and gardens are annexed avenues of trees, which exhibit a picturesque appearance. The high roads, which are scarcely passable in the wet season, are maintained at the public expense. The rich use horset, litters carried by men. In the mountains the housetts are dispersed, and the people almost savage. The chief product of agriculture is rice, which affords two harvests annually in the low country, but in the high lands only one. The rivers and canals abound with fish of various kinds: wheat and wine are unknown: the mulberry-tree is common: flulk is in general use among the poorer people: the sugar-cane is indigenous, but the art of refining the juice is unknown. The plough used in agriculture, consists of three pieces of wood, a pole, a handle, and a third piece, almost at right angles with the last, for opening the ground, and they are simply fixed with straps of leather: this plough is drawn by oxen or buffaloes. The horset are small, but lively and robust; but they are little used, as the inhabitants prefer travelling by water. Asses and sheep are unknown: goats are few, and swine abundant. The people eat dogs, cats, and rats: poultry, ducks, and geese abound, and are found wild in the forests. The eggs of ducks are heated in ovens, and produce young, which swarm on the canals and ponds. The forests contain deer, boars, peacocks, a peculiar kind of partridge, and quails. The tigers are large and destructive; one of which is said to have entered a town, and to have destroyed eighty-five people. The wild elephants are also very dangerous: apes are found in these forests, and some of them of large size: these and the parrots are not a little destructive of the rice and fruits. The manners of the people are those civilized than those of the Chinese: they are in general of middle stature, with broad faces, not so flat as those of the Chinese: eyes and nose small, and long black hair. The men have little beard, and do not shave. Few of the people are deformed, and the women are rather handsome. The complexion of people of rank approaches that of the Portuguese and Spaniards. At the age of seventeen or eighteen they begin to blacken their teeth, regarding white teeth as the pralie of dogs: like the Chinese, the fashion of suffering their nails to grow is reserved to the Mandarins, the men of letters, and other distinguished persons. The ladies tinge their nails with red, and sometimes their hands and feet. The drefs of the men consists of a piece of silk, several yards long, wrapped about the loins, and a long robe with loose sleeves, thrown off in travelling or during labour. The women of the lower orders are modestly clothed in a long petticoat, and one or more robes like those of the men. They cover their bosoms with a piece of linen or silk in form of a heart: they use ear-rings and bracelets of gold or silver. They commonly appear with naked legs and feet, like the men: but the rich and persons of dignity wear long drawers. The most general colour of the silk and linen is white. Black is only worn by persons of distinction. The men and women fasten their hair behind in a knot: but in the presence of a superior they let it fall, in token of respect.

The people are indolent, and loaded with heavy taxes. The public services required from them occupy about six months in the year. The learned language in Tonquin is that of China, but it degenerates into a kind of dialect which cannot be understood by a Chinese, and the words are all in single syllables, and expressing different things according to the accent and mode of enunciation. The language of Tonquin, and also of Cochinchina, called...
TONQUIN.

The Anam language, says Dr. Leyden, is simple, original, and monosyllable. It has little affinity to the Mandarin or court language of China, to that of Canton, to the copious polyphonelabic and inflected Japanese, or to any other of the Indo-Chinese languages. Barrow, in his voyage to Cochinchina, seems to consider it as a derivative from the Chinese; but Dr. Leyden perceives no similarity between the Chinese and Anam, unless that they are both monosyllabic languages, and that the signification of terms is regulated, in a great measure, by their accentuation. But though the same monosyllables occur, and though they are also accentuated in a similar manner, yet even in this case, the signification of these monosyllables is for the most part totally different. In the syntax or construction of the two languages, there is also a very great difference. The Anam language has neither genders, numbers, nor cafes, moods, tenses, nor conjugations; all which are supplied by the use of particles and the juxtaposition of words, as in the other monosyllabic languages. The same word is often the signification of both a noun and a verb, and its particular use, in such a case, is to be determined by the context, and the collocation of words in the sentence. The principles of collocation in sentences are equally simple as in the other monosyllabic languages; many instances of which are specified by Dr. Leyden. The accents in the Anam tongue are of such indispensable utility, that they have been very properly termed the soul of the language, while the primary monosyllables, varied by accent, have been made to represent its body. The Anam fytle is sometimes highly bold and figurative, and attains a degree of animation which is not very common among the Indo-Chinese nations of the continent. The ancient code of Tonquin has policed great celebrity, and was highly venerated previous to the conquest of that country by the Cochinchine. It is represented by the missionary Le Roy, as composed in the most elevated style of Chinoe, and full of uncommon modes of expression. He also mentions, that it was printed with an Anam translation, composed by an ancient Tonquin Mandarin. The religion of the Anam nation is a modification of the Budd'hist system, nearly resembling that which prevails in China. Many local and peculiar superstitions, however, are blended with it, such as the worship of the dog and tiger, to the first of which human sacrifice, and to the second, human flesh is offered. Traces of this worship are found among the mountaineers on the borders of India, as well as in the proper Indo-Chinese countries. There the tiger is worshipped by the Hajin tribe, in the vicinity of the Garrows or Garades.

The Quau-to, an ancient race, as the name signifies, who inhabit Kaubang, or the mountainous range which divides the Anam countries from China, regard themselves as the original inhabitants of Tonquin and Cochinchina, and consider the Anam as a Chinese colony. The Quau-to have a peculiar language, and write with a fytle, on the leaves of a plant, termed in Anam "jiwa." The Moi and Muong are also mountainer tribes, who speak languages different from the Anam; but it is hitherto unknown, whether they are original races, or only branches of the Quau-to. Asiatic Researches, vol. x.

Marriage is contracted without priest or ceremony, the consent of the parents forming the only ceremony. The husband may repudiate or sell his wife, but the wife cannot leave her husband without his consent. The right of primogeniture predominates, and daughters derive little benefit from the estate of their father. Polygamy is common; divorces are rare: children are not exposed as in China. The inhumanity of creditors equals that of ancient Rome, and the accumulation of usury renders the state of debtors very perilous. An abominable and cruel custom prevails, which is that of putting some person to death at the beginning of a new year, and with this view they poison the fowls and fruit which are brought to market: examples of this horrid practice, which, it is thought, will secure them good fortune, are frequent, but the punishment is rare. The chief amusements are plays, dances, and cock-fighting. The general food is rice, and pufhe is also in request. The necks of a species of swallow are also held here, as well as in China, in great esteem. The chief drinks is derived from a kind of coarse tea, but arrack is also much prized.

The climate of Tonquin is not very hot. From the month of September till March, it is temperate and healthy; in January and February the weather is cold, but neither snow nor ice is seen, and hail is very rare; the temperature of the air becomes rather infahbrion in the months of April, May, and June, which is the season of fogs and heavy rains; and great heat is felt in July and August. In the flat country, and on part of the mountains, the winds regularly blow six months from the N. and fix from the S., the first beginning in November. Among the maladies of this country, the most grievous is a kind of leprosy, which destroys the extremities of the hands and feet. The funeral ceremonies resemble those of China: pieces of gold or silver, or small pearls, are put into the mouths of the dead, that they may not enter poor into another world. Their religion resembles that of the Chinese, but the fect of Foo is most regarded. Every town or village has a tutelary genius. Sometimes the supped genii are vile animals, as serpents, dogs, cats, oxen, fih; but more frequently men, who have delved well of their country. The natives are not a little addicted to magic. The sciences, like those in China, are chiefly fought in the writings of Confucius and his commentators; the principal branches being morality, mathematics, physics, and astronomy, with the history and laws of the country. Knowledge is highly esteemed: and the men of letters are regarded as the pole nobility in the kingdom. All the offices and dignities of the state are the recompense of literary merit. Printing is known here, as in China; but painting and sculpture are in a low state. The chief trade is with China, which supplies Tonquin with fine teas, porcelain, silks, and painted linens, prepared fuggars, wheat and barley, flour, kitchen utensils, iron, devices, flez and lint, wax, cotton, gals, and toys. Strangers export from Tonquin varnish, filk raw or wrought, chiefly strong fuffs; beautiful cloth resembling linen, made of the bark of trees, different works of mother of pearl, ebony, ivory, tortoise-shell, cinnamon, copper, cotton, and several other articles. Calamine is also exported from Tonquin by the Dutch and carried to Japan, where it is used in the manufacture of bruffs. The interior commerce of Tonquin is considerable, consisting chiefly of fruits of different kinds, silk and cotton cloths, with those made of the inner bark of the paper-bearing mulberry. The cinnamon, duly cultivated, would be valuable. The trees that produce the varnish distill a juice resembling turpentine, and the quantity is increased by incisions. Sugar might form a considerable article, if the people knew how to prepare it. Paper, made of the bamboo, mulberry, elm, cotton-tree, and all kinds of white and fappy woods, is a considerable article. Salt procured from the sea, is a commodity of great demand in the interior of the country. The troops of Tonquin amount to about 140,000, of which about 8000 or 10,000 are cavalry. Elephants were formerly used in war, but the introduction of fire-arms has diminished their number. Since the revolution in Cochinchina, when the Chova rendered himself independent
The arms of the Tonquinese are the ancient mulleset fired with a match, the modern firelock being unknown there, bows, sabres, pikes and half-pees, and a defensive buckler. The troops of the king’s household, which are reckoned among the best troops of the East, are clothed in blue and red. The navy, amounts to about two or three hundred galleys, navigated with oars, and fitted for the rivers of the country than for the open sea. The king of Tonquin is reckoned among the rich sovereigns of the East, as he poises valuable treasures and an ample revenue, derived from rice, a tax upon land, a capitacion tax, the sale of dignities, and the duties on merchant-vessels, amounting to about one-tenth of the merchandise. The laws of Tonquin, like those of China, are founded on the fingle principle of paternal authority and filial obedience. The magistrates are denominated Mandarins, from the Portuguese mandar, to command, by the Europeans; but in the native languages both of China and Tonquin, the appellation is “Quan.” The tenure of lands and right of inheritance are respected even by the sovereign; and the successions in land are determined by one tribunal, and that of house and peronal property by another. The judges are corrupt, and justice is sold. The military and civil offices are venal. Executions are rare, not exceeding through the whole kingdom twenty or thirty in a year. Decapitation is counted ignominious: princes and perons of rank have the privilege of strangulation. Female criminals are trampled to death by elephants. The dignity of public executioner is hereditary. Other punishments are exile, perpetual imprisonment, and peronal chastisement, sometimes with the mutilation of a finger or ear. The prisons are said to be in a shocking state. On a general view of Tonquin, the country and the desert are extremely rich, and the people are very poor. The Jesuits, soon after the commencement of the 17th century, made an attempt to introduce into this country the Christian faith; but their efforts have not been very succesful; several instances having occurred of the persecution of Christians.

In the gulf of Tonquin there is a small ile, which is said to afford the mussel animal; and in the vicinity is a pearl fishery. The chief entrance of the river, called Dondoa by the Europeans, is obstructed by a bar, and requires the guidance of a native pilot. In this gulf, as well as the adjacent Chinefe sea, the “tuftons,” or “typhons,” are tremendous. They are preceded by very fine weather; a preeing cloud appears in the N.E. black near the horizon, edged with copper-colour on the upper part, fading into a glaring white. It often exhibits a ghastly appearance when the tempest is overhead; the typhoon bursts its rage lasts many hours from the N.E. attended with dreadful claps of thunder, large and frequent flashes of lightning, and excessive hard rains; then it sinks into a dead calm, after which it begins again with redoubled rage from the S.W., and continues for an equal length of time. Abbé Richard’s compilation from the papers of the abbe St. Phalle, a missionary in Tonquin for twelve years, who died at Paris in 1766: cited by Mr. Pinkerton, in his Geography, vol. ii. For an account of the revolutions in Tonquin from the earliest period of historical account, see Grofer’s China, vol. i.

**TONQUIN Bean.** In Botany, sometimes called Congo Bean, is the seed of *Dipteryx odorata*. See that article.

**TONQUIN MEDICINE.** See HYDROPHOBIA.

**TONS de l’Eglise.** Fr.; *Tonni Ecclesiastici*. Ital.; the ecclesiastical modes or tones in canto fermo. See PLEIN-CHANT, CANTO FERMO, and Eccelesiastical Modes, Authentic and Plagal.

For the history of the establishment of the modes at Milan and at Rome, see St. Ambrose and St. Gregory.

The modes of the Roman church are eight: four authentic, and four plagal. The four authentic, or principal, are the odd numbers: 1st, 3rd, 5th, and 7th; the plagal are the even numbers: 2d, 4th, 6th, and 8th; which answer to D and A minor, and C and D major, for the authentic; and G and A minor, and F and G major, for the plagal. These are described by Dr. Pepusch, Padre Martini, and Roufeau, and all their several scales may be seen in Burney’s General History of Music, vol. ii.

We have drawn out the scales of all the eight modes or tones ascending and descending (see Plates of Music), by which it will appear from the imperfectness of these scales in most of the tones, that they are only capable of melody; and in the common service of Roman Catholic churches, when the priests perform the duty without the assistance of professed musicians, no harmony is attempted to be given to mere canto fermo. In cathedrals, the motets and parts of the masses are sung by choirmen and children, as the anthems and services are in our cathedrals.

Notwithstanding the imperfectness of the scales, and little variety of keys in the ecclesiastical chants, secular music feems for many ages to have had no other rules, but to have been strictly confined to a few keys in the diatonic genus, without the liberty of transpositions. Hence came the timorous pedantry of excluding all other keys and scales but those used in the church; which kept every kind of melody meagre and indifp, and in subjection to the rules of ecclesiastical chanting. For it appears, that the only major keys used in canto fermo are C and its two fifths F and G; and the only minor keys A, E, and D. And in four of these keys the scale is deficient, as there is no seventh or note-deficient to G, A, or D. This accounts for so small a number of the twenty-four keys which the general system and scale of modern music furnishes, having been used by the old composers; as well as for the temperament of the organs by which these modes were afterwards accompanied.

And as all music in parts feems, for many ages after the first attempts at counterpoint, to have been composed for the service of religion upon canto fermo and its principles; it likewise accounts for the long infancy and childhood of the art, till it broke loose from the trammels of the church, by which it was bound in Gothic times: and by the cultivation of the musical drama sacred and secular, the ideas of composers were enlarged, and the talents of performers improved by new exertions, which brought the art nearer perfection during the two last centuries, than it had attained in few hundred years from the time of Guido. In explicit and religious obedience to the laws of canto fermo, no accidental flat or sharp was ever to appear; all the eight tones being rigidly in the diatonic genus in the keys of C and A natural, with no other semitones than F to E, and B to C. When the scales of these tones are drawn out at full length, they seem nothing more than different species of octave.

All these scales descending, might, however, be made perfect by a single flat or sharp at the clef: as the first tone by a flat, the third by a sharp. The 2d is perfect, descending; the 4th wants a sharp or two at the clef to determine it to be in the key of E or B minor. A flat would make the 5th complete in the key of F; and a sharp the 7th in that of G.
G. The 6th is in the key of C natural, ascending complete; and with a flat to B in the key of F, descending; the 8th with one sharp would be in G, and with two sharps in D major. But these were licences which no one thought of, or at least had the courage to practise, till counterpart began to gain ground. And even then, the musica fida, or false music, as that in transposed keys was called, no one dared to write till lately. Even the orthodox and good Padre Martini, at length vanquished his fears of the impiety of using an accidental flat or sharp in the inward parts of canto fermo.

Lorenz, author of the famous Spanish treatise called "El porque de la Musica," without which Gemmellini made Dr. Worog an absolute impossibility for any one to understand counterpoint, has written the scales of the eight tones as we have done; but has not ventured to harmonize them, as accidental sharps and flats must have been expressed or understood in the additional parts.

TONSA, in Geography, a river of European Turkey, which runs into the Mariza, near Adrianople.

TONSBERG, in Geography, a footport town of Norway, in the province of Agderhus, situated on a bay of the Baltic, built upwards of 800 years since. It formerly contained nine churches, but now has only two. The inhabitants carry on a considerable trade in fish and butter. In the year 1536, it was laid in ashes by the Swedes, since which, it has greatly declined; 42 miles S. of Christiansia. N. lat. 59° 23'; E. long. 10° 12'.

TONSELLA, in Botany, a name made by Schreber, out of the Tonclea of Aublet, which is itself taken from the Caribbean appellation of the same shrub, Rosswa-tonella. Schreber perhaps meant to give the word a classical air, by approaching it to Tonfa, an oar, or Tonella, a mooring pole, or a cable, for which indeed there seems no foundation in any recorded use of the plant. Possibily he might have in view tonfella, a word applied to the box, or other trees fit for clipping. This idea is, however, no less inapplicable to our Tonella than the former.—Schreb. Gen. 34. Willd. Sp. Pl. v. 1. 194. Vahl. Enum. v. 2. 29. Mart. Mill. Dict. v. 4. (Tonclea; Aubl. Guian. v. 3. 31. Juss. 436. Lamarck Illutr. t. 26.)—Chap. and order, Triandria Monogynia. Nat. Ord. uncertain. Juss.—It seems akin to Eowynous, and therefore probably belongs to his Rhommi.

Gen. Ch. Col. Perrninth inferior, of one leaf, bell-shaped, permanent, in five deep, ovate, acute segments. Cor. Petals five, ovate, thick, permanent, longer than the calyx, inserted into the receptacle. Nectary cup-shaped, entire, surrounding the generm. Stam. Filaments three, thread-shaped, reflexed, inserted into the infide of the nectary, rather shorter than the petals; anthers roundish. Fil. Germen superior, roundish, surrounded by the nectary; ryle cylindrical, shorter than the filaments; stigma simple. Peri. Berry spherical, seated on the permanent calyx and corolla, of one cell. Seeds four.


Obf. Jussieu appears to have been undecided about the natural affinity of this genus, from having preconceived the germen to be inferior, which it surely is not.

1. T. scandens. Climbing Tonella. Willd. n. 1. Vahl. Symb. v. 2. 179? (T. scabra; Vahl. Enum. n. 1. Tontelea scandens; Aubl. Guian. 31. t. 10.)—Leaves pointed, entire. Branches round, warty.—Gathered by Aublet in the forests of Guiana, near the river of Sinemari, thirty leagues above its mouth; flowering in October.—Von Rohr is said to have found the same in the island of Trinidad. The former terms it a shrub, climbing to the tops of the loftiest trees, and covering them with its opposite, repeatedly compound branches, which at length become pendent, even to the ground. In his own specimen before us they are slender, round, covered with minute warts, bursting through the cuticle, and bear several short opposite flowers, leafy at the extremity. We find no sign of hair-leafs. The leaves are opposite, on thick, channelled, smooth stalks elliptical, entire, two or three inches long, with a short blunt point; they are smooth on both sides, coriaceous, rather shining, with one rib, and many reticulated veins. Flowers green, very small, about the ends of the branches, in partly terminal, partly axillary, small clusters, whose entire stalks are opposite.

Vahl describes the plant of Von Rohr as a tree, whose branches have a purplish roughish bark, and are hairy in their upper part. The leaves are roughish on both sides; their veins villous at the back. Flower-stalks downy. Calyx and petals hoary; the latter fringed. We have seen no specimens of this, nor indeed of the flowers of Aublet's plant, but we cannot help supposing they may be different species, though we do not feel authorized to define them as such.

2. T. africana. Toothed African Tonella. Willd. n. 3. Vahl. n. 5. "Leaves obtuse, with glandular teeth." —Native of Guinea.—Similar to T. fimbriata, but different, having smaller and obtuse leaves, furnished with very dilute glandular teeth; a larger corolla, and fimbriate anthers. Berry, according to Vahl, the size of an apricot, smooth, orange-coloured, globular with three flight angles, and from six to ten seeds.

3. T. angula. Entire-leaved African Tonella.—Leaves pointed, entire. Branches angular, smooth.—Brought from Sierra Leone, by professor Azzelius. The dried speciments are of a peculiarly fresh light green, and quite smooth. Branches with four, not very prominent, angles, slender and wavy. Leaves two and a half inches long, elliptical, with a linear blunt point, quite entire, veiny. Flowers small, green, in small, axillary, fimbriate tufts, whose common stalks, like the flower-stalks, are about a quarter of an inch long. Fruit the size of a pea, apparently a tough-coated berry.

4. T. decussata. Crofs-branched Tonella. Vahl. n. 2. ("Anthodon decussatum; Fl. Peruv. v. 1. 45. t. 74. f. 6").—"Leaves oblong-ovate, obtusely serrate, polifhcd. Panicles forked."—Native of woods upon the Andes. A shrub, with croifing greyifh copious branches; purplifh when young. Leaves pointed, smooth on both sides, on twifefted flarks. Flower-flanks oppofite, square, shorter than the leaves, compound, forked. Flowers small, yellow, Fruit unknown, but the affinity of the plant to T. fimbriata has induced Vahl to place it in the fame genus.

5. T. fimbriata. Senegal Tonella. Vahl. n. 4. (Hippocratea fimbriata; Lamarck Illutr. v. 1. 101.)—"Leaves oblong, pointed, smooth, polifhed; ferrated towards the extremity. Stalks crowded, fingle-flowered. Branches rough."—Native of Senegal.—Branches alternate, definite of hair-leafs. Leaves about an inch long, with a blunifted point, half as long as the nail, their margins obliquely serrate, and appearing under a magnifier to be bordered with a yellow thickened line. Flower-flanks capillary, about half an inch long, numerous, from a short axillary tubercle. Petals linear, smooth.

6. T. madagafcarica. Madagafcar Tonella. Vahl. n. 5. (Hippocratea madagafcarica; Lamarck Illutr. v. 1. 101.)—"Leaves lanceolate-oblong, pointed, smooth, polifhed,

7. "Leaves obvate, entire, polished. Stalks crowded, each bearing two or three flowers."—Found by Richard in Cayenne. Branches opposite, smooth. Leaves three or four inches long, sometimes oblong-ovate, very smooth, delirite of veins. Flower-flats numerous, finely half an inch long, each divided into two or three simple partial flanks, about the same length, with minute bracteas at the base of each. Petals oblong, smooth. The fruit of these three last plants has not been examined, but Vahl was induced, as in the similar case of our fourth species, to remove them hither, on account of their very close affinity to T. africana.

The author just mentioned considers this genus as very nearly related to the Linnnaean Salacia, fea that article. This opinion is extremely probable, and if it be correct, the name of Tonfella must give place to Salacia. In the habit of the plants we find no grounds for any distinction.

TONSET, in Geography, a town of Norway, in the province of Aggerhus; 145 miles N. of Christiania.

TONFILS, in Anatomy, the glandular bodies, also called from their fize and shape amygdalae, placed at the paffage from the mouth to the pharynx. See Debulution.

Tonfils, Disfagia and Extirpation of. The tonfils are exceedingly liable to inflame; and sometimes the swelling thus produced is fo great as to obstruct deglutition and reflation in a very dangerous degree. Prompt fucceur is now moft urgently required; and relief may commonly be obtained by feareifying the enlarged tonfils, and promoting the bleeding with warm gargles.

This operation may be done with an ordinary lancet, or with a broad one contained in a feath, and confructed fo that its point can only be pulled out to a certain dilation. Pharyngotomus is the name ufually given to this inftrument. Aftclefes in the tonfils are alfo to be opened, when the fwellimg caufes ferior inconvenience.

When fcarifications cannot be made, the beft means are venefection, applying leeches to the throat, exhibiting mercurial medicines, inflaing the flem of hot water, and using proper gargles.

Aftclefes of the tonfils have been observed of coniderable extent, not burfling in the mouth, as is ufual, but in the Eulachian tube, or even the matus auditorius externus, attended with caries of the madow procufes, deafnes, and fiffuza. Such cafes are frequently incurable.

The tonfils fometimes become eurpofed, without being in- flammed. This fwellimg is improperly termed feirhouze. The glands are only swollen and of moderate firmenes. A portion of a tonfil, thus enlarged, may be cut off, without the leat danger of the reft afluming a malignant nature. This pre-ternatural swelling of the tonfils is mortly owing to repeated inflammations. Sometimes there is no palpable caufe. The malady is confantly free from pain. When the tune- faetion is coniderable, it obstructs the fpeech, deglutition, and reflation.

Difcuriant and aftringent applications here prove ineftual. The tumour admits of being removed; but it is unnecessary and improper to take away the whole tonfil, as a dangerous and even fatal hæmorrhage might be the confequence. Only fo much of the fwellimg fhoul be removed, as is fufficient to afford relief. The remaining portion in general heals, without the leat difficulty; a clear proof that the difeafe is not of a malignant nor cancerous nature.

The extirpation of a part of a tonfil, thus difeafed, has been accomplished with caufics, the actual cautery, the ligature, and cutting inftruments. The firft of these plans was feecfsfully prafticed by Wifeman; but is now quite abandoned. The confecution is alfo relinquihed, as no modern furgeons employ it, except now and then, with a view of deftroying fungous excrefences, which, in a few infiances, origimate a part of the tumour has been removed by fome other operation.

A variety of inftruments has been devised for putting a ligature round difeafed tonfils.

There are very good furgeons, who flll preferenting difeafed tonfils to cutting them away, and the mode to be adopted differs according as the swelling has a narrow or broad base. The ligature ought to be made of filver wire, or catgut. When the tumour has a narrow neck, the ligature is to be doubled, and introduced through the noflril, fo that the nofe may be feen in the throat. With the aid of a pair of forceps, the nofe may then be easily placed round the neck of the tumour. The ends of the ligature are then to be brought through a double canulla, and the fetter inftrument introduced as far as the tonfil. The ligature on each fide is then to be drawn tightly, and falfened round rings at the end of the canulla. The inftrument may next be twifled, till a due degree of contrifiction is produced.

Default employed an inftrument, called a ferre-naud, for putting the nofe of the ligature over a difeafed tonfil, and producing the necelfary degree of contrifiction. The ferre- naud was nothing more than a little ring, mounted on a longitudinal, narrow piece of fteel, about five inches long, the other end of which was grooved, or rather forked. The difeafed tonfil was firft taken hold of with a double hook. With the ring, the nofe was conducted along the hook, and put over the tonfil; the ligature was then drawn out, while the ring preffed the nofe downward and backward. Thus the due contrifiction was made, and it was next maintained by twifling the ends of the ligature round the forked extremity of the inftrument, on the outifide of the mouth. Default par Bichat, to. ii. p. 233.

When the difeafed had a broad base, and was of a conical shape, fo that the ligature was apt to flip off, Cheffelden has recommended the ufe of an inftrument like a crooked needle, fet in a handle, with an eye near the point, threafted with a ligature, which is to bethrift through the bottom of the gland, and laid hold of with a hook. The needle is then to be withdrawn. The double ligature is next to be brought forwards, and one part tied above, the other below the tumour. The ligatures are now to be cut off near the knots.

We have already observed, that the removal of the whole enlarged tonfil is unnecessary, and therefore injudicious. We may now notice, that a portion of the tumour may be cut away, without any jft ground for fearing a dangerous bleeding. The application of a ligature occasionally produces a moft perilous swelling of the difeafed tonfil, attenated with fuch hazard of suffocation, as to compel the furgeon to cut and remove it. Bertrand, and many other eminent furgeons, have been in the habit of cutting away enlarged tonfils, without ever meeting with an infance of danger from the fubfuent bleeding.

Default fometimes employed a flat fléath, made of silver,
and having a notch in it for the reception of the base of the
tonsil. The latter part being thus taken hold of, a spring
was touched, when a concealed blade immediately moved
across the notch, and made the requisite division, without
any risk of injuring the adjacent parts in the mouth.

The operation may be done with a pair of scissors, con-
structed with short blades and long handles; or it may be
performed with a bistoury, which, in general, must be the
best instrument.

The haemorrhage may usually be stopped by repeatedly
washing the mouth with very cold water.

When the enlargement of the tonsil is really of a febrile
nature, a paste which is possible, though not common, an
operation, performed so as to remove only a part of the in-
durated enlargement, would not be followed by success.

Calculous concretions have been known to form in the
tonsils, occasioning troublesome coughing, fore-throats, &c.
The propriety of extracting them, when their existence is
clearly ascertained, is almost too obvious to require being
mentioned. First Lines of the Practice of Surgery, by
Samuel Cooper, edit. 3.

TONSTALL, or TUNSTALL, Cuthbert, in Biography,
a native of a gentleman of
5 good family, and born at Hatchford, in the ancient Rich-
mondshire, about the year 1474. Having studied both at
Oxford and Cambridge, he travelled for further improve-
ment, and graduated doctor of laws at Padua. Recom-
manded by his learning and character to archbishop Warham,
he became his vicar-general, and was collated to the king
of the rectory of Harrow, in Middlesex. Besides other pre-
ferments, he was appointed, in 1516, to the office of master
of the rolls, and in this year accompanied Sir Thomas More
as ambassador to Charles V. at Brussels, where he formed an
intimacy with Erasmus. After obtaining other preferments,
and accomplishing another embassy to the emperor, he was
promoted, in 1522, to the see of London, and in 1523, to the
office of keeper of the privy seal. He was afterwards em-
ployed in several missions of importance on civil affairs; and
whilst he was at Antwerp, he manifested his religious zeal by
buying all the unfold copies of Tyndale's translation of the
Bible, in order to burn them at St. Paul's Cross. His zeal
was similarly engaged in urging Erasmus to write against
Luther, and in instigating prosecutions against hereby.
In 1530, Tonstall was promoted, in recompence of his services,
to the see of Durham. Fluctuating in his disposition and
politics, he first favoured and afterwards disapproved the
divorce of Catharine of Arragon: he also defended Henry's
assumed title of supreme head of the church, after having at
first protested against it; and though he was not indifferent
to the usurpations of the papal see, he was firmly attached
to the doctrines of the church of Rome. Repenting, as we
hope, of having burnt the Bible, he joined with Heath,
bishop of Rochester, in revising an English translation of it
in 1541. Under Edward VI. he conformed to all the ordin-
ces relating to religion, whilst in parliament he protested
against every change. At length his rich episcopal pre-
fenteation, which those who sought preferment could not re-
fil, and therefore Tonstall was charged with
mispription of treason, and a bill of attainder was brought into
the house of lords, which, though opposed by Cranmer, passed
hotly, but was stopped in the commons, the evidence being
thought insufficient. His enemies, however, determined to
displace him, and a commissioon was appointed to examin-
him with regard to all conspiracies, &c.; and having been
found guilty, he was deprived, and committed to the Tower,
where he remained a prisoner to the end of this reign. The
see of Durham was converted into a county palatine, and
granted to the duke of Northumberland. On the succession
of Mary, he was restored to his see; and his temper being
mild, he neither avenged himself on his enemies, nor were
any persons brought to the stake in his diocese during this
favourable reign. His whole conduct seems indeed to indi-
cate a favourable change in his temper, for he discouraged
persecution, and afforded an asylum to his nephew, Bernard
Gilpin. (See his article.) When Elizabeth succeeded to the
crown, hopes were entertained that his moderate principles
would have led him to acquiesce in the reformation, but he
preferred the surrender of his bishopric to compliances
against which his conscience revolted. Refusing to take the
oath of supremacy, he was deprived, and being committed to
the custody of Parker, archbishop of Canterbury, he was
attracted with kindness, and by the prelate's reasoning in-
duced to abandon some of the greater errors of popery.
He died in 1559, at the advanced age of eighty-five, and
was interred, at the archbishop's expense, in the church of
Lambeth. As to his general character, he was munificent
and attentive to his episcopal duties; and in his private life,
exemplary and amiable. He was author of several works,
among which was a treatise on arithmetic. Some of his
letters are preserved in Erasmus's collection. Biog. Brit.

TONSURE, from tondre, to shave, the art or
act of cutting the hair, and shaving the head. See HAIR.

The tonsure was anciently a mark of infamy in France;
infomuch that, when they would render any prince incapable
of succeeding to the crown, they cut off his hair and shaved
him. See BEARD.

TONSURE, in the Roman church, is used for the entrance
or admission into holy orders.

In propriety, tonsure is the first ceremony used for de-
voting a person to God and the church, by presenting him
to the bishop, who gives him the first degree of the clericate,
by cutting off part of his hair, with certain prayers and
benefactions.

Some hold the tonsure a particular order; others, as Loy-
feau, only the mark and form of ecclesiastical orders in
general.

The tonsure suffices to make a clerk; the rest is only
to qualify him for the holding of benefices. A person is
capable of the tonsure at seven years of age; thence be
neehe of simple tonsure is such an one as may be enjoyed
by a child of seven years old. The tonsure is the basis of all
the other orders.

TONSURE is also used for the crown, which priests, &c.
wear, as the mark of their order, and of the rank they hold
in the church. See CROWN.

The barbers have the measure and dimensions of the dif-
ferent kinds of tonsure, or clerical crowns, to be practised
according to the different degrees and orders. A clerk's
tonsure, a subdeacon's tonsure, a deacon's tonsure, a priest's
tonsure, are each successively bigger than the other.

TONTANEA, in Botany, a word left unexplained by
Aublet, but evidently of barbarous origin.—Aubl. Guian.
158. t. 42. Pull. 190. Lamarck Illust. t. 64. (Bel-
lardia; Schreb. Gen. 790? Willd. Sp. Pl. v. 2. 626.)
Clafs and order, Tetrandra Monogynia. Nat. Ord.
Radiaceae, Joff. Gen. Ch. Cal. Perianth superior, of one leaf, in four
deep, ovate, acute, equal, spreading segments. Cor. of one
petal, funnel-shaped; tube thrice as long as the calyx;
limb in four deep, ovate, acute, equal, spreading segments.
Stam. Filaments four, thread-shaped, inserted into the throat
of the corolla, between the segments, and about equal
to them in length; anthers roundish, of two cells. Fils. Ger-
men roundish, inferior, crowned with an annular disk; style
rather
rather longer than the corolla, thread-shaped, divided half way down; filaments dense, obtuse. *Peric. *Berry ovate, crowned with the withered calyx, of two cells, easily separable. *Seeds* numerous, convex on one side, concave on the other, winged, inserted into the tranverse partition.

Eff. *Chi.* Corolla of one petal, funnel-shaped, four-cleft, acute. Berry of two cells, with many winged seeds.

T. guianensis. Aubl. t. 42. — Native of moist woods in Guiana and Cayenne, flowering, and bearing ripe fruit, nearly all the year. A trailing herbaceous perennial plant, creeping by means of fibrous radicles; the *stem* and *branches* round, slightly downy. *Leaves* opposite, stalked, ovate, fleecy, entire, hairy, an inch and half long, with a pair of intraxialaceous *filaments.* Flowers white or blueish, three or four together, in little, axillary, stalked, solitary heads. *Berry* blue, with a vinifid juice. Schreber's *Bellardia* was named in honour of Dr. Charles Louis Bellardi, the co-adjuitor of Allioni, and still living at Turin. His *Appendix ad Floram Pedemontanam,* and his *Offenbarungen Botanizbi,* prove him an able and observing botanist. *Bellardia* ought to have been noticed by one of our predecessors in that proper place. We could adopt it here, in the place of the above doubtful name, *Tontangil,* were there not much doubt of the identity of the plants. Schreber describes his as having linear unequal segments to the calyx, a hairy or villous obtuse corolla, very short, *flament* linear anthers, and a nearly globose *capsule,* not a berry. Neither does he notice a wing to the *seeds,* which he describes as acutely angular, and dotted. Had he not cited Aublet, no one would have supposed their genera to belong to each other; nor does Schreber himself decidedly affect it. Of his *Bellardia* nothing is known, except from his own generic character, because he never published a *Species Plantarum,* to clear up the obscurities attendant on his new genera.

**TONTAPILLY,** in *Geography,* a town of Hindoostan, in the circuit of Rajamundry; 30 miles N.E. of Rajamundry.

**TONTECO,** a town of Africa, in Bambouk; 10 miles N. of Combrigoudou.

**TONTELEA,** in *Botany,* Aubl. Guian. t. 10. See *Tonsella.*

**TONTI,** or *Tonki,* in *Geography,* a river of Canada, which runs into lake Erie, nor far from the Orwell.

**TONTINE,** a loan raised on life-annuities, with the benefit of survivorship. Thus, an annuity after a certain rate of interest is granted to a number of subscribers, who are divided into classes according to their ages; and annually the whole fund of each class is shared among its survivors, till at last it falls to one, and on his death it reverts to the power that first established the tontine. The term is derived from the name of the inventor.

**TONTING,** in *Geography.* See *Tong-tin-hoi.*

**TONTON,** an African drum, which Pere Labat, in his voyage to Guinea, tom. ii. numbers among the musical instruments of the Negroes, and which is never used but upon the approach of an enemy, or on extraordinary occasions. It seems to surpass in force the Stentorphone tube of Alexander the Great; as it is said that it can be heard at the distance of fix or seven miles!

**TONTORAL,** *Cape,* in *Geography,* a cape on the coast of Chili. S. lat. 27° 30'.

**TONTONVLORE,** a town of Hindoostan, in the circuit of Complipilly; 25 miles W.N.W. of Mafulpitam.

**TONTOR,** a cape of Scotland, on the N.W. of the island of Ilay. N. lat. 5° 41'. W. long. 6° 27'.

**TONYES,** a town of Mexico, in the province of Culiacan; 60 miles N.E. of St. Miguel.

**TONYNS**'s **ISLANDS,** a cluster of small islands in the East Indian sea, near the S.W. coast of the island of Celebes. S. lat. 5° 31'. E. long. 119°.

**TONZI,** in *Ancient Geography,* a town of Thrace, on the coast of the Euaxine sea, between Apollon and Perонтicum. Ptol.

**TONZOS,** or *Tonzus,* a town in the interior of Thrace. Ptol.

**TOOBIGAN,** in *Geography,* a small island in the Sooloo Archipelago. N. lat. 6° 14'. E. long. 120° 4'.

**TOOBOUAI** **ISLAND,** one of the Society islands, in the South Pacific ocean. Its greatest extent, in any direction, exclusive of the reef, is not above five or six miles. Small as the island is, there are hills in it of a considerable elevation. At the foot of the hills is a narrow border of flat land, running quite round it, edged with a white sand beach. The hills are covered with graps, or some other herbage, except a few rocky cliffs at one part, with patches of trees interperfed to their summits; but the plantations are more numerous in some of the valleys, and the flat border is quite covered with high strong trees, whose different kinds could not be distinguished, except some coco palms, and a few of the eka. According to the information of some men whom captain Cook saw in the canoes, their island is stocked with hogs and fowls, and produces the several fruits and roots that are found at the other islands in this part of the Pacific ocean. This island is populous, and the inhabitants are more sedate than the natives of the Society islands, as well as less hospitable. Fletcher Christian, with his companions, mutineer of the Bounty, attempted to form a settlement here in the year 1789. They had a dispute with the islanders, and a secerve engagement, in which one or two of the mutineree were wounded, and many of the natives were killed. Christian, after this, left the island of Tooobouai, and failed to Otahi, where some of the crew left him: nine only remaining on board, with some of the natives, men and women, with the Christian cut the cable, and put to sea, since which time he has not been heard of. The language is the same as that spoken at Otahi. S. lat. 23° 25'. E. long. 210° 37'.

**TOODAWAH,** a town of Pegu; 35 miles S. of Lundey.

**TOODIGUNTLA,** a town of Hindoostan, in Golconda; 25 miles E. of Damiopotra.

**TOODY,** a town of Hindoostan, in Canara, on the coast; 21 miles S. of Carvar.

**TOOE,** a town of Hindoostan, in Bawar; 12 miles E. of Bawar.

**TOOFOA,** one of the friendly islands, visible from Annamooka, by means of its height, and a volcano, which almost constantly emitted smoke, and sometimes threw up stones. Its shores are steep, and covered with black sand. The rocks are hollow, and in some places of a columnar form. The mountain, except in spots that appear to have been recently burned, is covered with verdure, shrubs, and trees. The coast is about five leagues in circuit. To the north-east of this island, and about two miles distant, is another of much less extent, but of thrice its height, which is called Kao; it is a mountainous rock of a conceal form. Both these were discovered by T'afman, and have been seen by every subsequent navigator of this group. Captain Cook passed between them, and had no soundings in the channel by which they were separated. Each island was underfoot to be inhabited, but no European had landed upon either, at the time when the mutiny suddenly occurred in the Bounty two days after the departure of that vejjel from Annamooka. Lieutenant Bligh was forced into a boat with eighteen of his people, when ten leagues S.W. from Toofoa: he attempted
therefore to get an immediate supply of bread-fruit and water at that island, which, as he understood, afforded those articles. The next morning, 28th of April, 1789, they landed in a cave, on the south-west coast; they climbed the heights, but obtained only some cocoa-nuts and plantains, and a few gallons of water from holes in the rocks. The weather being too boisterous to proceed, they sheltered themselves by night in an adjacent cave. On the 1st of May, several of the inhabitants brought them a small supply, and retired peaceably in the evening. The next day their number greatly increased. Some principal personages also came round the north side of the island in canoes, and among them one of the chiefs whom captain Bligh had threatened to carry from Annamooka: they offered to accompany him to Tongataboo, when the weather should become moderate; but some symptoms appearing of a design to obtain by force the articles that he could not afford to barter with them, he determined to depart that evening, as they were not inclined to retire. They had previously told him some of their weapons, and they now allowed his people to carry their property into the boat; but they would not suffer him to embark, and a contest ensued, in which most of the English were wounded by stones, and one of them was killed. The rest escaped, and bore away towards New Holland, from whence they reached the East Indies in their boat, enduring extreme hardship, but no farther loss of lives.

TOOOGAUM, a town of Hindoostan, in Baglana; 16 miles S. of Junere.

TOOK, a town of Persia, in the province of Cohelcan; 40 miles E. of Tabalkili.

TOOKE, John Horne, in Biography, the third son of a poulterer in Newport-market, was born in Newport-street, Wellminister, in June 1736, and having spent some years at Wellminister and Eton schools, was admitted into St. John's college, Cambridge, in 1755, where he took the degree of B.A. After officiating for some time as an usher in a school at Blackheath, he took deacon's orders, in compliance with the wishes of his father, and served as a curate in Kent. But the law being the object of his choice, he entered in the Inner Temple in 1756. Nevertheless, in 1760, he was ordained as a priest, and entered into the chapel of New Brentford, purchased for him by his father. But as he entered very deeply and warmly into the political disputes of the period in which he lived, he ceased officiating as a clergyman, and took an active part in the transactions of that period. When Wilkes returned from his exile to France, and became a candidate for the representation of the county of Middlesex, Horne was his zealous adherent, and was thought to have contributed to the success of his election. It is said, that it was by his instigation that Mr. Beckford, lord mayor in 1770, made a verbal reply to his majesty's anwer to a remonstrance from the city of London; and that he drew up that reply as inscribed on the pedastal of Mr. Beckford's statue in Guildhall. He is regarded also as the principal founder of the "Society for supporting the Bill of Rights," of which he was an active member; and by his exertions Eingley, a printer, who had been committed to prison by lord Mansfield for refusing to appear for the purpose of answering to interrogatories, was at length liberated. In the years 1770 and 1771, a quarrel took place between Wilkes and Horne, in the prosecution of which the latter lost popularity, without incurring any just charge against his political integrity. In 1771 he took his degree of M.A., though opposed by some members, among whom was Mr. Paley. To him it was owing, that the publication of the debates in the house of commons has been continued without interruption.

At this time he had a literary controversy with Junius, in which he was thought to have the advantage. In 1773 he threw off his clerical garb, and proposed to resume his legal studies with a view to the profession. But at this time an incident occurred, which was of material importance with respect to his future fortune. Mr. Tooke of Purley, in Surrey, had ineffectually opposed an inclosure bill, which was likely to be detrimental to his estate, and as this bill was passing rapidly through the commons, he applied to Horne for advice. After some deliberation he proposed to Mr. Tooke a remedy, which was to commence with a libel on the speaker, which he would undertake to write. Accordingly he flated the cafe, accompanying the statement with some severe reflections, and sent it to the Public Advertiser. When the paragraph was next day reported to the house and read, it occasioned great irritation, and a motion was made for calling the printer before the house. Mr. Horne, as the acknowledged writer, was called to the bar; he immediately obeyed the summons, and in a respectful manner confesed, that through hatred to oppression, and zeal to serve a friend, he had been urged beyond the bounds of discretion. After a long debate, he was removed from the bar in custody of the serjeant at arms, and upon being brought up some days after, he was, by the good offices of some friends, discharged upon paying his fees. His purpose was answered: time was thus given for reconsidering the obnoxious bill, and the exceptional clauses were either altered or withdrawn.

Mr. Horne was an ardent opposer of the American war; and when the news of the battle of Lexington arrived, the Constitutional Society voted 1000 to the widows and children of the Americans who had fallen in it; and the resolution to this purpofe, printed in the public papers, was signed John Horne. In this resolution, the sufferers were denounced "Englishmen who, preferring death to slavery, were, for that reason only, inhumanly murdered by the king's troops at Lexington." For this paragraph he was prosecuted, and tried at Guildhall in July 1777, and pleaded his own caufe. Notwithstanding the spirit and acuteness with which he defended himself, he was sentenced to twelve months' imprisonment, and to pay a fine of 200l. He left the courts of this trial he first attended before the public as a grammatical critic; and in 1778, he printed a letter to Mr. Dunning, which discussed the force and meaning of certain conjunctions and prepositions employed in his indiciement, and which was the foundation of a larger work afterwards published. In the following year, he was dis- appointed in his expectation of being called to the bar; for though he was eminently qualified for the profession to which he aspired, he was rejected under the pretext of his being full a clergyman. This he felt as a very grievous disappointment, and with a mind not a little exasperated he devoted himself to politics. Accordingly, in 1780, he published a pamphlet, entitled "Facts," keenly reviewing Lord North's administration, and containing two chapters on Finance, supplied by Dr. Price. Soon after the termination of the American war, parliamentary reform became a popular topic; and in 1782, Horne published a letter to Mr. Dunning (lord Affurton) under the title of "A Letter on Parliamentary Reform, containing the Sketch of a Plan!" of which we shall merely say, that he disapproved of universal suffrage. Mr. Pitt was at this time a fellow advocate in the same cause. Horne now avowed himself the friend of Mr. Pitt, in opposition to Mr. Fox, whose coalition with lord North he very much disapproved. In 1786 Mr. Horne, having allu- merged the name of his friend Mr. Tooke, published his "Epica Perecenta, or Diverfions of Purley," so called from
from the country residence of his friend. Of this work, founded on his letter to Mr. Dunning, already mentioned, the most prominent subject of diffusion was the derivation of conjunctions and prepositions from verbs and nouns, whence they acquired a determinate meaning, often different from that which has been arbitrarily imposed upon them. This work attracted the notice of philologists, and gave to the author a high rank among writers on the philosophy of language. (See Grammar.) Politics, however, diverted his attention from subjects of this nature; and in 1788, he published "Two Pair of Portraits," the figures in which were the two Pitts, and the two Foxes, of the past and present generations. The first name was strongly illuminated, and the latter thrown into a dark shade. He might probably, however, at a later period, have adopted a different mode of colouring. In 1790 he opposed Mr. Fox and Lord Hood at the election of representatives in parliament for Westminster; and professing himself unconnected with party, and determined neither to open a house nor to give away a single cockade, he polled near 1700, without implication or corruption. On occasion of his defeat, he presented a petition to the house, in support of which he freely indulged himself in very bitter farcical invective. In the year 1794 he was brought to a trial, under the charge of high treason. During the progress of this trial, he maintained the most perfect composure and self-possession; and as he had little to apprehend after the previous acquittal of Hardy, the jury brought in their verdict of "not guilty," after being only eight minutes out of court. In consequence, however, of this trial, he became more cautious in his conduct, and declined the visits at Wimbledon, where he resided, of persons known to be violent in their principles and conduct. Upon the death of Mr. Tooke of Purley, he inherited, in consequence of a previous agreement, half of the property left by that gentleman to his nephew. In 1796 he offered himself again as a candidate for Westminster, and suffered a second defeat, after having polled 2819 votes. He was chargeable, however, with some inconsistency in the acceptance of a feat, in 1801, for the noted borough of Old Sarum, on the nomination of Lord Camelford. Some attempts were made to exclude him, under the plea of his being a clergyman; but a compromise being proposed by the minister, Mr. Addington, by determining the future ineligible of persons in holy orders, his defeat was a subject of conversation and lamentation. Having published by subscription a second edition in 4to. of his "Divisions of Purley," a second part in 4to. appeared in 1805, in which he chiefly adverted to etymology, and to adjectives and participles, and their formation, intermixing fatical strikures upon some literary characters of note. From this time his bodily infirmities, occasioned by a disorder to which he had been long subject, increased, though he retained his faculties in full vigour, and continued to enjoy life. His temper was little affected by mental or physical evil, and "no one more strenuously maintained," says one of his biographers, "the balance of good in human existence."—"His latter days," says the same writer, "were chequered by early circumstances, and the attention of many friends, whom he entertained with great hospitality, and amused by his conversation, which was singularly pleasant and lively. With an unsheltered brow, he could be either facetious or farcical, and his features seldom discolored what was passing within. His manners were polished, and his appearance was that of a gentleman of the old school." His life at length terminated, by tedious and continued decay, in March 1812, in the 77th year of his age. As he was never married, his property was bequeathed to his natural children. Stephens's Memoirs of John Horne Tooke. 

TOOKOOK, in Geography, a town on the W. coast of Borneo. S. lat. 2° 24'. E. long. 109° 46'.

TOOJEE, a town of Hindooftan, in Guzerat; 20 miles S. of Gogo.

TOOLEN, or Tullen, (i.e. the Isle of Seals,) a small island in the Caffian sea, near the W. coast. N. lat. 44° 14'.

TOOLAPOUR, a town of Hindooftan, in the country of Dowlatabad; 45 miles E.S.E. of Perinda. N. lat. 18° 20'. E. long. 76° 35'.

TOOLLY, a town of Hindooftan, in Goaundwa; 10 miles W. of Coomth.

TOOLMEDIN, a town of Hindooftan, in the circur of Bopal; 45 miles S.W. of Bopaltol.

TOOLS, simple and popular instruments, used in the more obvious operations, and particularly in the making of other complex instruments.

The term tool is particularly used by canal-makers, for a kind of strong curved spade or shovel employed in canal-works.

Tools are divided into edge-tools, spring-tools, pointed-tools, &c.

Mr. Parkes, in the fourth volume of his "Chemical Effays," has given a history of the origin and progressive improvement of edge-tools, and an account of the materials of which they were constructed. It appears from Goguet's "Origin of Laws," to which he refers, that as many of the ancient nations had no knowledge of iron, they used stones, flints, the horns and bones of various animals, the bones and shells of fish, reeds, and thorns for every purpose in which the moderns now use edge-tools of iron and steel. Spears and other instruments for exterminating wild beasts, and even implements of agriculture, were formerly made with gold and silver; and instead of these was afterwards substituted copper, as a metal more easily to be procured than malleable iron. The abundance of celts and other ancient instruments, found in various parts of the globe, shows that copper and brass were formerly in very general use. From the prodigious number of copper instruments of different kinds and sizes, which have been found in this country, such as axes, swords, spear-heads, arrow-heads, &c. known among antiquaries by the general name of celts, it is evident that our ancestors were well acquainted with the art of forming metallic copper in any way which they thought proper; whereas the use of metallic iron is comparatively of late introduction. At the time of the first Roman invasion, this metal was so rare, that the Britons fabricated their money with it, and even their ornamental trinkets. But the Romans having made themselves masters of the country, established imperial founderies for making iron, and constructed forges for manufacturing spears, lances, battle-axes, and implements of every kind, in different parts of the kingdom. (See Cafer, de Bell. Gall. lib. v. c. 12. Henry's Hist. of Britain, vol. ii. p. 139, 140.) At the battle of Hamilton, in 1402, the repulse of the Scots appears to have been entirely owing to the excellent temper of the arrows which were employed by the English army. Swords also were then in use, and Shielfield was, even then, famous for its cutlery. Table-knives, it is said, were first made in London in 1563, by one Thomas Matthews of Fleet-bridge. Good edge-tools cannot be made without steel; and of this there are various sorts (see Steele); such as blistered, shear, spur, far, and caid steel; besides which there is a kind of German steel, made immediately from the iron ore, by simple fusions. (See also Wootz.) The cheapest edge-
edge-tools, and other less important articles, are usually made with the first-mentioned kind, united to a large proportion of bar-iron. Clothiers' shears, firmer chisels, plane-irons, coopers' adzes, fetties, reaping-hooks, and large knives, are commonly made with shear-steel: for the method of manufacturing it, see Shears. The spur and stab steel are to be ironed for particular purposes, according to the fancy of the maker. Carpenters' steel is used for the best pen-knives, fetties, and razors; and fine saws, surgical instruments, and all edge-tools which require a fine polish, and various other implements employed in cutting iron, are all made with cast-steel. The superior beauty of instruments made with cast-steel would have occasioned a very great consumption of this article, if it had not been for the difficulty of welding, or uniting it properly with iron, and which occasioned its being used at first only for those smaller instruments, such as lancets and penknives, which are generally made entirely of steel. But since the discovery made by Mr. Thomas Frankland (for which see WELDING), cast-steel has been brought into more extensive use, and the instruments that are thus constructed, are much better than those which are made entirely of cast-steel. The circumstance of an instrument having its back made of iron, renders it not so apt to fly from the work to which the edge or steel part is applied, and eventually less liable to break.

Many articles, long after the invention of cast-steel, used to unite it to the iron by means of rivets. Hobs were still made by riveting or screwing the back, together with the eye, upon a blade made with cast-steel. We cannot minutely recite the various manipulations that are practised in the manufacture of different edge-tools. The reader will find information of a more ample kind in the work of Mr. Parkes, above cited. (See also the article CUTLERY.)

We shall, however, select the following particulars: the cooper's adze and the carpenter's axe are first formed by the white-smith, in iron, together with the eye for the helve. The instrument is then heated again, and the edge of the cutting part is fit down with a chisel, and this fit is filled with a thin piece of steel, of a corresponding size and form. The iron, that has been fit upon, is folded down upon the steel, and the whole again heated to a welding heat, when the file-dagger quickly unites the iron and the steel into one compact mass. Scythes and such other large instruments are forged at the mill, by means of a large hammer, moved by water, and the process is called "skelping." Augers, gouges, large chisels, table-knives, razors, and other instruments of a similar bulk, are forged upon a large anvil by the principal workman, aided by an assistant called the "flirker," who flircles occasionally with a file-dagger. Pen-knives, lancets, gravers, surgical instruments, and other small edge-tools, are generally forged on a small anvil firmly fixed within a large one, in order to give greater readiness. These are usually fashioned out of steel only, and forged by one workman singly and alone. Scissors are also forged by a single hand; but the anvil on which they are fashioned is of a peculiar construction, having backs or dies, and back irons of various sizes occasionally adapted to it, so as to suit the different shapes and dimensions of the separate parts of these particular instruments.

It should have been noticed, that many other tools besides the axe and adze are originally forged out of a piece of iron, with a little steel welded to it for the cutting part of the instrument.

The real Damascus sword-blades are said to be composed of slips or thin rods of iron and steel bound together with iron wire, and then firmly cemented together by welding.

It is well known that it is the circumstance of drawing down the shear-steel under the tilt-hammer that gives it the superiority over common steel. (See TILT-Hammer, and TILTING OF STEEL.) Mr. Bingley therefore suggests in his patent, that, if he could roll out his steel much thinner than it had ever been done before, he should much improve its quality: and accordingly a very thin piece of steel is let into the face of a plane-iron made of cast-iron; and, as the-steel for this particular purpose has to go through the rollers several times to make it sufficiently thin, it becomes of a peculiar texture, and the tool made with it is found to suit the joiner much better than the plane-irons hitherto in use.

In the manufacture of edge-tools, the process which immediately succeeds the forging is that of hardening. All these cutting instruments are therefore fashioned when the metal is in its original soft state; and when they have attained the intended forms, they are heated to the particular temperate suitable to the article. When they have acquired that degree of heat, they are instantly plunged into cold water, which gives them great hardnees, and renders them capable of cutting soft iron, or even steel. See TEMPERING.

Tools, DRAINING, in Agriculture, the various kinds of tools which are employed in performing this work of work, such as spades, spits, spools, draining augers, boring augers or rods, flax-knives, &c. See thea heads.

Tools, Lopping or Pruning, in Rural Economy, the various tools, such as hedge-bills, large-knives, axes, saws, chisels, &c., used in taking off the fife-shoots and branches of forest-trees. And lately an instrument uniting several of these properties has been invented, which is very convenient, and readily dispatches the boughs. It is described as below in the first volume of the "Memoirs of the Caledonian Horticultural Society," where a representation of it is also given. It is perfectly simple in its form, having merely two edged hooks, projecting from a socket-hank three inches in length, the breadth of which, where the hooks spring off, is two inches and two-tenths of an inch; the hooks themselves project from the shank three inches; between them, and on the top or upper side, is placed a strong chisel, four inches in breadth, and one inch in depth; the whole tool or instrument being about eight inches in width. The length of the wooden handle must, of course, be in proportion to the height and size of the trees to be lopped or pruned, as in different lengths, from fix to eighteen feet, which last is, it is said, as long as a man can well and properly manage them. Where trees require lopping or pruning to a greater height than the above length of shaft or handle, a ladder is to be made use of for the purpose, and one of the short-handled tools or instruments.

It is noticed, that the hook part is what is principally made use of, which cuts the branch from the upper side; the chisel is only employed when flags are left, and where branches are too strong for the hooks; in which cases, the chisel is first made to strike the branch from below; but a mallet is never used.

It is observed that fir-trees will certainly be greatly improved by lopping and pruning with this tool, both as to growth and quality of timber; but that care should be had not to over-cut or prune them. Larches will, it is said, always shew when that is the case with them, by breaking out into numerous unnatural branches; but that it may not be so soon noticed in Scotch, s juris, and other firs, which, however, have generally a fluted appearance for some years afterwards, and that it sometimes occasions their death. Four or five tiers of branches should always, it is thought, be left, particularly on young trees; and that on larches there should be still more.

Tools, ScRAPING, in Agriculture and Rural Economy, the
several sorts of tools and contrivances which are formed and made use of for cleaning and removing the mould, dirt, and other matters, that may adhere to different kinds of implements while they are in work, as those of the drill, roller, plough, and some other kinds; and to the surfaces in some other cafes, as those of wheels, roads, &c.

In the drill and the roller, the scrapers mostly consist of thin bars of iron or wood, so constructed and fixed behind, as to take off the dirty or mouldy cloppy substances as they collect upon them. In ploughs it is usually done by a small fort of paddle, with a short handle used by the ploughman.

The surfaces of wheels, in heavy carriages, are cleaned by tools of the scraping kind, properly contrived for the purpose. For tools of this sort, where the tires of the wheels, in such cafes, are made concave, it has been advised that a small item should be fixed to the body of the carriage, which may prevent a convex scraper; which, on account of the shifting of the wheel on its axis, sometimes a full inch or more at its perimeter, should be made to slide on the item, having a kind of bracket to embrace the thickens of the felly: thus the thickness of the wheel having pretended to it a convex scraper sliding on a square item; which, allowing one or two inches of play, has at its outer end a bolt-head, the two arms of which forming a bracket, will always keep the scraper opposite to the groove, or hollow in the wheel.

It is suggested that the blade of the scraper should be very shallow, as it would otherwise operate as a lever upon the bar; and either wrench it, or ultimately round off the corners, so as to allow the tool to be turned out of its proper direction, which should be at an angle of five degrees under the horizon. But it is supposed that the tool for scraping the fore-wheel of a wagon will be more difficult to fix, with proper firmeness, on account of its traversing. It might, however, it is thought, be effected by setting it on a segment attached to the body of the carriage; but the necessary length of item would prove a formidable objection in such a case. The bolt mode would, it is thought, be to fasten it to the wooden axle, so as to move always with it, and consequently preferring its relative position to the edge of the wheel.

In other cafes, other sorts of light iron plain scrapers may be fixed so as to allow them to act in removing the dirt from wheels where necessary.

In the scraping and cleaning of roads, tools of the cow-rake headed kind are used by the hand, and large machines in other shapes by horses. See Road-Scraping Machine.

Tool, Skimming, in Agriculture, that fort which is employed in taking off the surface of the land in ploughing, in order to its being deposited in the bottom of the preceding furrow, and thus making neat clean tillage-work. Tools of this kind, with sharp paring and cutting edges, are differently formed, according to the purposes to which they are to be applied; but the mode of fixing them to a fort of fore-coulter in ploughs is considered by many as a great improvement, as they are found in that way to do the work much better than if attached to the common coulter, in which manner they sometimes do not work well. See Tillage.

TOOLUC, in Geography, a town of Hindooftan, in Behar; 36 miles N.W. of Harripour.

TOOLUMBO, a town of Africa, in Bambarra. N.lat. 12°55'. W. long. 5°.

TOOM, a town of Hindooftan, which runs into the Tungbhadra; 15 miles S.E. of Samore.

TOOMANUA. See Opoum.

TOOMBEWADY, a town of Hindooftan, in the Carnatic; 8 miles S.W. of Caroor.

TOOMBUCK, a town of some note on the Persian gulf, between Congou or Kungoon, a large and populous town, and Tahir or Tahirie.

TOOMCOUR, a town of Hindooftan, in Myfro; 20 miles S. E. of Sera.

TOOMEBRIDGE, a post-town of the county of Antrim, Ireland, situated at the northern extremity of Lough Neagh, where there is a bridge over the narrow channel which separates that lake from Lough Beg. It is 97 miles N. by W. from Dublin, and 13 miles W. from Antrim.

TOOMISH, a town of Ireland, in the county of Kerry; 14 miles S. of Tralee.

TOOMRY, a town of Hindooftan, in the circur of Hindia; 24 miles N. of Hurdah.

TOOMSIR, a town of Hindooftan, in Goondwana; 38 miles N.E. of Nagpore.

TOON, a town of Persia, in the province of Cheetan; 90 miles N. of Tabakilie. N.lat. 34°32'. E.long. 53°35'.

TOONDY, a town of Bengal; 38 miles S.S.E. of Curruckdeah. N.lat. 24°58'. E.long. 86°34'.

TOONE, a river of Ireland, which runs into the Lee, 15 miles W. of Cork.

TOONG, a town of Hindooftan, in Dowlatabad; 26 miles W. of Poonah.

TOORAMBADDY, a town of Hindooftan, in Myfro; 13 miles W.N.W. of Aravacourchy.

TOORATTEO, a town on the coast of Celebes. N.lat. 5°33'. E.long. 120°4'.

TOORDA, a town of Africa, in Kaarta; 24 miles N. of Kemmoo.

TOORGOODY, a town of Hindooftan, in the Carnatic; 10 miles S.E. of Trichinopoly.

TOORSHA, a river of Bengal, which, after its confluence with the Maundy, affumes the name of Neeloomar, and flowing its course through Baharund, falls into the Berhampooter, properly (it is said) Brahma poorta, offspring of Brahma.

TOOS, a town of Persia, in Khorassan; 25 miles S. of Mefchid.

TOOSANG, a town on the west coast of Celebes. S.lat. 6°30'. E.long. 110°38'.

TOOSCHONDOLCH, an Indian village, on the west coast of North America; of importance in the fur trade. N.lat. 53°2'.

TOOSHOR, a town of Hindooftan, in Myfro; 5 miles E. of Nancul.

TOOSI, a town of Japan, on the south coast of the island of Niphon; 84 miles S.S.E. of Macao. N.lat. 34°35'. E.long. 137°35'.

TOOSIMA, one of the small Japanne islands, near the N.W. coast of Niphon. N.lat. 40°40'. E.long. 140°0'.

TOOTH, Den', in Anatomy. See Teeth.

TOOTH-ACHE. See Teeth, Difterent of.

TOOTH-DRAWING. See Teeth.

TOOTH, Wolf. See Wolves-Teeth.

TOOTH, in the Manege. It is by a horse's teeth, chiefly, that his age is known. See Teeth, in Rural Economy.

TOOTH-ACHE Tree, in Botany. See Zanthoxylum.

TOOTH-PICK. See DAUCUS.

TOOTH-WORT, a name applied to several plants, on account of a resemblance in their roots to the human teeth. This
This is very striking in \textit{Lathrea Squamaria}, whose roots are furnished with smooth white scales, very accurately imitating, except in hardnefs, the \textit{dentes ineifores}, or fore-teeth. This resemblance is perceptible also, though less exact, in the roots of the various species of \textit{Dentaria}; see that article. \textit{Opbryi Carolinianus} of Linnaeus has, for a similar reason, been sometimes called \textit{Dentaria}; which name, or \textit{Dentillaria}, has also been given by Rondeletius to the \textit{Plumbago}, because of the teeth of its corolla; a character found in many other genera. \textit{Dentella}, see that article, owes its name to the last-mentioned circumstance. It is hardly necessary to advert to the reputed qualities of the above tooth-rooted plants, which were founded on the resemblance in question. On this subject more may be said when we come to speak of the \textit{Virtues of Plants}.

\textbf{TOOTHED}, in Botany and \textit{Vegetable Physiology}, \textit{dentatus}, is properly applied to the margin of any leaf, petal, &c. when furnished with directly prominent teeth, which scarcely point either towards the base or the point of such leaf or petal, or of their segments. Yet this term is not always so strictly limited as it ought, being sometimes negligently used, when \textit{ferrate} would be more proper. \textit{Stamens} however are said to be toothed, when they have any lateral prominence, or notch whatever, as in \textit{Althaea}.

\textbf{TOOTOOCH}. See \textit{Erronian}.

\textbf{TOOTOA}. See \textit{Erronian}.

\textbf{TOP}. See \textit{Erronian}.

\textbf{TOP}, or \textit{Tope}, in \textit{Commerce}, a wine-measure at Bremen, and in other places of Germany. At Bremen, an eimer of wine contains 20 tops, 80 quarts, or 320 quarts, and is equal to 14\textsuperscript{1} English gallons.

\textbf{TOP}, in \textit{Geography}, a lake of Russia, in the government of Olonetz, about 44 miles in length, and 8 in breadth; 256 miles N.N.W. of Petrovodik. N. lat. 61\textdegree. E. long. 30\textdegree 14\textquoteleft.

\textbf{Top of a Ship}, a sort of platform, surrounding the lower mast-head, from which it projects on all sides like a scaffold. Its principal intention is to extend the topmast-sheets, so as to form a greater angle with the masts, and thereby give additional support to the latter. It is fastened by the trefoil-trees and cross-trees. The top is also convenient for containing the materials necessary for extending the small sails, and for fixing or repairing the rigging machinery. In ships of war it serves as a kind of redoubt, and is accordingly fortified for attack and defence, being furnished with fRowls, musquetry, and other fire-arms, and guarded by a thick fence of corded hammocks. It is also used as a place for looking out, either in the day or night. The frame of the top is either close-planked like a platform, or open like a grating. In all ships of war, and in the largest merchantmen, the top is fenced on the aft-side by a rail about three feet high, stretching across and supported by stanchions, between which a netting is usually constructed.

The outside of this netting is generally covered with red bays, or red painted canvas, extended from the rail down to the edge of the top, and called the \textit{top-armour}. By this name it seems to have been confedered as a sort of blind, behind which the men may conceal themselves from the aims of the enemy’s fire-arms in time of action, whilst they are charging their own muzzles, carbines, or fRowls. The dimensions of tops in the royal navy are as follow: the breadth of the top at the bottom is one-third of the length of its corresponding top-mast; the length of all tops, from the foremost to the after-edge, is equal to three-fourths of their breadth athwart; and the square hole in the middle is five inches to a foot of those dimensions. The trefoil-trees and cross-trees extend nearly to the edge of the tops.

The aft-side of the top is straight, and the fore and aft sides square from thence to the aft-side of the foremost cross-tree; from thence the fore-part breaks in with an elliptical curve. Tops in the navy are separated in the middle by a fore and aft line, which makes them much more convenient to be gotten over head.

By a late order in the navy, the under sides of tops are to be planed, and the after-part of the face and main tops is to be eighteen inches wider, and the after-part of the mizen top, one foot wider than at the chain-plate for the foremost shroud; the infide of the tops on each side by the part called \textit{rubber’s hole}, is to have a flap and hinges, so that a top-gallant yard, main, or a top-sail, may pass in and out.

Tops, to lay ropes from a fix-thread ratline to the large cables, are conical pieces of wood, with three or four grooves, or scores, from the butt to the end, for the strands to lie in, and form a triangle. If too broad at the butt, the rope will not close well, nor the strands work close as they should. A hole is made through the centre of the top, one-third the length from the butts-end, for the staff or bolt to go through, round which are put pieces of old rope, called tails, for the layers to close the rope with, and lay it hard or slack, according to the use it is for. A hole is likewise made through the middle of the top lengthways, for laying ropes with a heart. A collar is put on to afford the layer when the work is too heavy, and to enable him to hold the tails, and close the rope well.

Tops, to lay ropes of three inches and upwards, have a staff under them, with a truck-wheel at the lower end. An iron bolt goes through the centre of the top, and is lashed down to the staff, on which the tails are put and rounded over the rope, being too heavy to be laid with the collar. A frap is put round the tails, with a woolder for the layer to close the rope with.

Tops, to lay cables, have a leg to support them, with a truck-wheel at the end to run on, besides the staff which the tails go over.

Tops, for laying lines of all sizes, are of box or hard wood, tapered at the after-part, that the line may close sharp. Those for fRow lines have four grooves, and for baleines eight grooves.

\textbf{Tor and Butt}, in \textit{Ship-Building}, a method of working English plank, so as to make good conversion. As the plank runs very narrow at the top, clear of fap, this is done by disposing the top-end of every plank within six feet of the butt-end of the plank above or below it, letting every plank work as broad as it will hold clear of fap, by which method only can every other seam produce a fair edge.

\textbf{Tor-Armour}, in a Ship of War. See \textit{Tor}, supra.

\textbf{Tor-Block}. See \textit{Block}.

\textbf{Top-Brim}, a space in the middle of the foot of a top, fail, containing one-fifth of the number of its cloths. It is so called from its situation, being near the fore-part of the top when the fail is extended.

\textbf{Top-Chain}, a chain to sling the fail-yards in the time of battle, in order to prevent them from falling down, when the ropes by which they are hung happen to be shot away, or rendered incapable of service. Falconer.

\textbf{Top-Hamper}, any unecessary weight aloft, either on the top-side of a ship, or about its tops and rigging.

\textbf{Top-Leaf}, a receptacle to hold three or more lights, made of tin and glass, placed in the aft-part of the top, in any ship where an admiral or commodore leads the van of a fleet.
TOP

Top-Lining, the lining fewed on the aft-side of top-fails, to preserve the fall from the chafing of the top.

Top-Mast, the second division of a mast, or that part which stands between the lower mast and the top-gallant mast. See Mast-Making.

By a late order in the navy, the blocks at the heels of top-masts (particularly in line-of-battle ships) are to be discontinued, and the top-masts made from as small ficks as possible: the sheave-hole is to be placed nearer the heel, by which means the several quarters will be brought nearer the butt, and the sizes of the ficks for making of top-masts diminished; and as some of the rough ficks will work one way larger than the other in the upper quarters, and thereby increase the circumference of the wood, where strength is requisite, leave this additional wood, and make the mast oval: a hoop is to be placed below the sheave-hole, and above the fit-plate. The caps of top-masts, also, are to have a semi-circle cut at the after-part, with an iron clamp to fit, so as to admit of getting a top-gallant-mast up abaft the top-mast, if necessary in chase.

The heels of jib-booms are also to be left square, to serve as substitutes for mizen-top-masts occasionally: and let the hearts be prepared conformable thereto.

Top-Gallant-Masts, are two, viz. main-top-gallant-mast, and fore-top-gallant-mast, which are small round pieces of timber, let on their respective top-masts; on the top of which masts are let the flag-fails, on which the colours, as flag-pendants, &c. hang.

Top-Netting is fastened to the rail, shrouds, and top, to preserve men from falling, &c.

Top-Rope, a rope employed to screw up a top-mast, or top-gallant-mast, in order to fix it in its place, or to lower it in tempestuous weather, or when it is no longer necessary. The rope used on this occasion for the top-masts is furnished with an assemblage of pulleys at its lower end, called the top-tackle; the effort of which in erecting the top-mast is communicated from the head of the lower-mast to the foot of the top-mast; and the upper end of the latter is accordingly guided into, and conveyed up through the holes between the treffel-trees and the cap. For this purpose, the top-rope, passing through a block which is hooked on one side of the cap, and afterwards through the holes, furnished with a sheave or pulley, in the lower end of the top-mast, is again brought upwards on the other side of the mast, where it is at length fastened to an eye-bolt in the cap, which is always on the side opposite to the top-block. To the lower end of the top-rope is fixed the top-tackle, the effort of which being transmitted to the top-rope, and thence to the heel of the top-mast, necessarily lifts the latter upward, parallel to the lower-mast. When the top-mast is raised to its proper height, the lower end of it becomes firmly wedged in the square hole, between the treffel-trees. A bar of wood or iron, called the fid, is then thrust through a hole in the heel of it, across the treffel-trees, by which the whole weight of the top-mast is supported. In the same manner the top-gallant-mast is erected, and fixed at the head of the top-mast. Falconer.

Top-Sail-Lifts. See Lifts.

Top-Sails, and Top-gallant-sails, in a Ship, are those belonging to the top-masts, and top-gallant-masts. The former are extended across the top-mast by the top-fail-yard above, and by the yard attached to the lower-mast beneath; being fastened to the former by robunds, and to the latter by means of two blocks fixed on its extremities, through which the top-fail sheets are infared, passing from thence to two other blocks fixed on the inner part of the yard, close by the mast; and from these latter the sheets lead downwards to the deck, where they may be flapped or extended at pleasure. The top-gallant-fails are expanded above the top-fail-yard in the same manner. Falconer. See Sail.

Since the article Sail-making was printed, the following alterations concerning sails have been adopted in the navy: viz. top-fails are to be reduced by deducting four inches for every three feet in length of the top-mast, instead of three inches and an eighth, as at present.

Mizen-top-fails are to be hollowed in the foot a yard and a half, instead of twenty-seven inches, to prevent rubbing over the stay; and top-gallant-fails are to be hollowed two feet in the foot of the fall, for the above-mentioned purpose.

The main-top-mast-fall-fail is to have six inches gore in every cloth at the foot of the fall, and long gore at the clue.

Mizen-courses are not to be supplied to any ships under fifty guns, but two drivers in lieu.

Driver-booms, as used in 1806, are to be reduced two inches in every yard. The length of the gaff to be in proportion to the fall, and then three feet added thereto, to shew signals.

Drivers are to be cut with a deduction in length, to answer the reduction in length of the boom and gaff, as above. Drivers for line-of-battle ships, the leech to be twice the length of the luff. For frigates, the length of the leech to be once and two-thirds the depth of the luff.

Jib.—The after-leech rope is to be two inches and a half in ships of the line, and in forty-gun frigates two inches and a quarter: other ships above twenty guns two inches, and one inch and three-quarters all under.

White bolt-rope is to be used in making of falls, instead of the tarred rope at present in use.

Single clump-blocks of eight inches in size are to be tarp-bound, clue-garnet fashion for reef-tackles in the leech of falls.

Top-Side, a name given to all that part of a ship's side above the main-wales.

Top-Timbers, the timbers which form the top-side of a ship. The first general tier which reach the top of the side are called the long top-timbers, and those the drift above are called the short top-timbers.

Top-Timber Half-breadth, a section containing one-half of the ship, at the height of the top-timber line, perpendicular to the plane of elevation.

Top-Timber Line, is the curve limiting the height of the keel at the given breadth of the top-timbers.

Top-Timber Sweep, is that which forms the hollow of the top-timber. This hollow is, however, very often formed by a mould, so placed as to touch the upper-breadth sweep, and pass through the point limiting the half-breadth of the top-timber.

Top-a-Starboard, and Top the Yard-arms. See Toppings.

Top-Brakes, signifies the level of the top of a canal's bank; as B C K, Plate I. Canals, fig. 1. &c. This is generally about one foot higher than the surface of the water D K.

Top-Soiling, the art of taking off the vegetable mould or top-soil before a canal is began, to be returned again upon the bank and new-made ground by the side of it.

Top-Water is the level line of the water's surface, as D H (Plate I. Canals, figs. 14 and 15) in a canal C F G I.

Top-Drainage, in Agriculture, a term sometimes applied to the practice of removing surface-wetness from land, either before it is to be prepared for the seed, or after that
has been put into the foil. In the latter of which cases, the furrows for the water are to be stricken with the plough, so as to terminate in the drains which have been formed, and take it away. This should be done daily, as the field is gone over by the harrow. See Surface-DRAINING.

This is an useful sort of draining for ploughed lands that are inclined to be wet.

Top-DRESSING, a term applied to such forts of reduced and other manure as is laid upon the surface of land without being turned into it; and also to the practice of dressing the surface of grass-land, or that of other kinds of land and crops, with some sorts of highly reduced or powdery manure, that can be evenly spread out or sown equally over them by the hand.

In the cultivation and management of lands of these kinds, a great variety of substances is in use for this purpose, such as foot, ashes, the dung of rabbits, pigeons, and other birds, rapa-duft, gypsum, malt-duft, and several others; the nature, ufe, and benefits of which, are more particularly noticed under their different respective heads, which fee.

The advantages which the Hertfordshire farmers derive from the practice of spring or top-dressing their lands and crops, are fully fhewn in the statements that have been given in the original report of the agriculture of that district; in which it is said, the spring or top-dressings of their lands are the leading features of the farming in that county, and consist of foot, ashes, malt-duft, and oil-cake duft, or pulverized oil-cake. The foot is generally used on the wheat-crops which have had no previous manure. It is laid in keps on the crops in winter, and sown over them in the spring. But the other top-dressings are houfed, and kept dry till used in this way at the proper time. See Soor.

It has been observed in some of the early Effex agricultural reports, that the application of manure upon the surface, or what is generally called top-dressing, ought chiefly to be regulated by the following confiderations: as, first, whether the foil is of such a nature as to require any correction in its temperament, to render it more or lefs tender, open, or fiable: secondly, whether the manure profoed to be applied, is capable of operating to that end: thirdly, whether the manure is capable of affording nourifhment to vegetables, unless it is brought into clofe and immediate contact with some other power or principle containing vegetable food in the foil: and, fourthly, whether the plant profoed to be fed by fuch manure, draws its nourifhment principally from the ground, or in other ways.

It is faid, that in the affirmative of all these cases it is plain the manure should only be flightly covered or lightly ploughed under. But that when the manure is of fuch a nature as to apply but lightly to fuch confiderations; when it is capable of being diffolved on the surface, and conveyed by water downwards to the roots of the plants, or by convection into vapour, to be absorbed by their ftiems or leaves, and that the plant is equally prone to receive its nourifhment in both ways; the economy and effective operation of top-dressings are unquestionably the most highly beneficial and greatly to be preferred.

Thefe top or spring-dressings are peculiarly applicable to poor light fandy and gravelly lands, and of course to the production of the specifically heaviest corn; and they put such lands more on an equality, in point of annual value, with stronger and richer foils.

And in the Corrected Agricultural Report of the fame district, it is faid that ashes as top-dressings, though they open and loosen the foil, do not feed a crop. They are sup-posed to laf two crops, and to be of fuch benefi to wheat-
crops, that when tenants quit farms, they are allowed half the expence of alighting or top-dressing the clovers, which has been laid out, that the in-coming tenants are to fow with wheat: some few infances too are met with of following them over or on wheats. The ufal time is the middle of winter, if the feaon be mild or moif. Moaf is destroyed by fome with this fort of top-dressing on park grafs-land, who think they do little good to the foul that follows the clover on which they are fpread, otherwife than by improving the clover. They are decidedy of opinion that it is better husbandry to use foot on barley than this kind of top-dressing; as the former will do much good to the following clover, whereas the latter are of no more utility to the wheat than by increasing the quantity of the clover crop. The farmers in these cafes low from ten to fourteen facks on clover.

In other parts of the fame district, these forts of top-dressings are laid to be very beneficial; and that on being fpread out on clover, they do as much good to the following wheat, as that of a top-dressing of the foot kind or footing did. On a comparison of them, as fown in November and February on clover, over exactly the fame places of land, in the fame quantities: thofe ufed at the former period produced the best crop by about a fourth part of a load of this form of hay on the acre. Some, how-ever, in other places, do not much approve of fuch top-dressings, except on clay, to fpread the foil, as they term it: they are fuppoef to do little good on arable chalky lands.

Top-dressings compofed of the duffs of different cakes are found very ufeful, but often too expensive for the purpo-fe. Some think thofe of the linfeed-cake kind the beft dysterious they have been known for wheat in top-folding, even fo late as the month of May, with fheep fed on fuch cake in troughs. The duff of cakes of the rape kind has likewise been much employed in some places as top-dressings, even when the expence has been fo high as twenty shillings the quarter. Mills are confructed for grinding it in the above district, and large quantities are imported from Ireland, and perhaps other places. Some have ifones attached to threshing-mills for reducing it to duff as a manure, the ufe of which is greatly approved of in fome cafes. By fome it has been found that it answers the better when fpread on wheat. The quantity of this manure as a top-dressing is of from twelve to fifteen bushels on an acre, as to add to the richness of the land or foil, already in a tolerable ifte of condition. It cannot be made ufe of for any crop better than for that of wheat. By having machinery for breaking and reducing it into a duffy flate, the farmer is faid to have the advantage not only of buying it in at any time of the year when it is the moft reasonable, (for as the two feafons of using it come on, it often increases in price, and is again cheaper when they are past,) but of readily preparing it and keeping it free from any admixture of other matters. It is faid that this fubfance is not now fo good as formerly, as the manufacturers of oil from the feed of rape contrive to pref it twice at prefent, whereas they formerly never pref it more than once; and that, besides, they then only fed horeses, where they now ufe water, wind, andteam.

The two principal feafons for making ufe of these forts of duffs as top-dressings, are in the very early springing, and in the early part of the autumn, when the weather is rather moif.

Top-dressings of the malt-duft kind, which chiefly con-fift of the infant sprouts of the grain, and probably contain faccharine matter, from the powerful nature of their eflects in
The principal colour of the topaz inclines to yellow, called by professor Jameson wine-yellow. The pale wine-yellow passes from various shades of yellowish and greenish to white at the latter, but the latter colour is very rare. The topaz sometimes occurs massive and in rolled pieces, but more frequently crystallized. The crystals are seldom very large. The primitive form of the crystal, according to Hauy, is a rectangular octahedron. The common forms of the secondary crystals are varieties of the oblique four-fid ed prism, terminated by four planes. The fides of the prism are longitudinally streaked, but the terminating planes are smooth. When the edges of the crystals are truncated, the truncated planes are also smooth. The Brazilian and Siberian topazes are more deeply streaked than the Saxon. The external luster of the topaz is splendent, the internal vitreous. The longitudinal fracture is small, and imperfectly conchoidal; the crow fracture is straight, and exhibits a lamellar structure. The topaz is translucent or transparent, and refracts double: it scratches glasses, but is scratched by spinel: it is easily frangible. The specific gravity varies from 3.464 to 3.641.

The Saxon topaz becomes colourless by a gentle heat, and in this state is sometimes fold for the diamond. A strong heat deprives it of its luster and transparency. The Brazilian topaz, by exposure to a strong heat, becomes red; and in a still higher temperature, violet-blue; it is then sometimes fold for the ruby, or for pale spinel. The topaz is insensible by the blowpipe, but melts with the addition of borax. The topazes of Brazil, Siberia, and Asia Minor, become electrical by heating. The constituent parts of this gem appear to vary considerably in different specimens.

<table>
<thead>
<tr>
<th>Saxon</th>
<th>Brazilian</th>
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</thead>
<tbody>
<tr>
<td>Silex</td>
<td>35</td>
</tr>
<tr>
<td>Alumine</td>
<td>59</td>
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<tr>
<td>Fluoric acid</td>
<td>19</td>
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The topaz is found in various parts of Europe and Asia, and in South America. It occurs in large quantities in a rock denominated by Werner the topaz rock, which is an aggregate of massive topaz, quartz, and fchord, in which there are frequently small cavities lined with crystals of these three substances, and portions of lithomarge. This rock is situated at Schneekenstein, in Saxony.

It occurs also in veins of quartz at St. Michael's mount, in Cornwall, and with tin-ore at St. Anne's, in the same county. The topaz has recently been found, in large crystals and rolled pieces, in alluvial soil in the primitive country of the upper part of Aberdeen. Indeed it is stated, in the first volume of the Wernerian Memoirs, that a specimen of topaz, weighing one pound three ounces eight drachms troy weight, has been obtained from that part of Scotland. The largest specimen of Brazilian topaz in the museum of natural history at Paris, weighs four ounces two gros. In this museum there is also a superb Indian Bacchus engraved on topaz. Tavernier mentions a topaz, in the possession of the great Mogul, weighing one hundred and fifty-seven carats, which cost 20,300l. sterling: and Boetius de Boot, in his treatise of precious stones, affirms to have seen in the cabinet of the emperor Rudolphus, whose physitian he was, a topaz above three feet long, and six inches broad. Probably, it might be some other stone a little transparent, of a topaz colour. This gem was much prized by the ancients. Yellow-coloured rock-crystal has not been unfrequently imposed on the ignorant for topaz.

The oriental topazes, which have a deep rich orange-colour, are highly valued at present. The Brazilian topaz

Vol. XXXVI.
TOP

has not so rich and fine a colour as the former. The Saxon topaz is distinguished by its wine-yellow colour, and when cut, often exhibits a lufure equal to that of the finest oriental varieties. The mountain-green varieties of topaz, which are found in Siberia, are included under the name of aqua marine. The Brazilian ruby and sapphire include the red and blue Brazilian topaz.

The topaz may generally be distinguished from all other minerals by the rhomboidal base of its crystals, the fracture, and a crescent lamellar structure, and by the longitudinal streaks on its side planes. It is less hard and heavier than yellow sapphire, and the latter does not become electric by heating. The same characters distinguish it from sapphire; it is further distinguished from sapphire by its double refraction. Green-coloured topaz is distinguished from beryl by its greater specific gravity, that of topaz being 3.5, and of beryl only 2.7. The latter cleaves in the direction of its lateral planes, which the topaz does not.

The following minerals have been denominated topazites, when colour was considered as affording the most certain character of precious stones.

1. Yellowish-white faphirine
2. Zircon
3. Chrysolite
4. Yellowish beryl
5. Yellow rock-crystal
6. Clove-brown and brown rock-crystal

Names given to varieties of the topaz.

1. Mountain green topaz
2. Blue topaz
3. Yellow topaz
4. Wine-yellow inclining to red topaz
5. Red topaz
6. Yellowish-green topaz

See Sapphire, Ruby, and Gems.

A peculiar property of the topaz was discovered by Vanquelin, that the powder of this gem changes the syrup of violets to green if it remain in the liquor two or three hours, and this property is common to all the varieties of the topaz.

Mr. Canton, in 1760, found that the Brazilian topaz has the electrical properties of the tourmaline.

The topaz is easily counterfeited, and there are facetious ones, which, to the eye, are inferior to the natural ones.

To counterfeit the topaz in glass, see Glass resembling Topaz.

To counterfeit the oriental topaz in paste: Take crystal prepared, two ounces; ordinary gum, or red lead, seven ounces; put these into a crucible luted, and bake them twenty-four hours in a potter's kiln. If the mass is not sufficiently clear and fine, cover it up again, and give a second baking, and it will come out of a fine topaz colour. See Paste.

If we might believe the ancients, the topaz has very notable virtues; but those are now in discredit. See Gem.

TOPAZOS, or Topazus, in Ancient Geography, an island placed by Pliny in the Red Sea, 300 stadia from the continent.

TOPDALS, in Geography, a town of Norway, in the province of Christianland; 32 miles N. of Christianland.

TOPE, in Ichthyology, an English name for a species of the squalus, according to the Artediatory, the squalus galeus of Linnaeus, distinguished from the other squali by the nostrils being placed near the mouth, and by certain foramina, or apertures, near the eyes. It is the fish called by the ancients saurus, or squalus canis and curculiata. See Squalus.

TOPEL, or Tapel, in Geography, a town of Bohemia, in the circle of Pilzen; 56 miles W. of Prague. N. lat. 49° 58'. E. long. 12° 57'.—Alto, a river of Bohemia, which runs into the Egra, near Carlsbad.

TOPERHA, a small iland in a bay on the N. coast of New Guinea. S. lat. 3° 5'. E. long. 135° 35'.

TOPETINA, a town of Mexico, in the province of Mechoacan, at the mouth of a river near the Pacific ocean; 50 miles N.W. of Zacatula. N. lat. 18° 59'. W. long. 105° 44'.

TOPETRY, a town of Hindoostan, in the Carnatic; 50 miles S.E. of Tanjore.

TOPHATH, in Ancient Geography, a place in the Land of Paride, near the Dead Sea. Jofiah destroyed this place on the abolition of idolatry.

TOPHUS, a kind of node, or swelling of the perio- team. Alto, the fort of concretion found in the joints of gouty perisons.

TOPHUS, in Natural History, is a species of sand-floe, called also porus, mostly of a grey colour; but it is also found of other colours, as whith, brownish, &c. according to the foil in which it is imbedded. It much resembles the pumice in texture, being rough and brittle, and composed of a large angular grit, cemented by a very coarse terrene crystalline subsidence. It is too soft to strike fire with flint. It is common in Italy and in Germany, where it is used for building, chiefly for cellars and turning arches. Da Colta's Hiist. Foliiis, p. 136.

TOPI, in Geography, a small island in the Mediterranean, near the N. coast of the island of Elba. N. lat. 42° 51'. E. long. 11° 30'.

TOPIA, a town of Mexico, in the province of Culiaca; 80 miles N. of Culiaca. N. lat. 25° 44'. W. long. 108°.

TOPIA, the chief chain of mountains in Spanish North America, commencing in the neighbourhood of Guadalaxara, and extending north to New Mexico, a distance of 150 leagues, or, according to our maps, more than 700 British miles; while the breadth of all the ridges is, according to Alcedo, sometimes 40 leagues, or 160 miles. This chain is of such a height as to be comparable with the Andes of Peru, and abounds with precipices of the most profound and terrible aspect. It is almost universally densely clothed with large and lofty pines, and other trees which afford suffusion to birds of very variegated and beautiful appearance. On the summit the cold is intense, but the tem- perature on the fides varies according to climate and exposure. It is the source of many rivers flowing into the Atlantic and Pacific, and subject, on the melting of the snow, to very considerable inundations. During the rains, which last from June to September, the rivers become terrible in their devastations to the distance of two or three leagues, and the mosquitoes become intolerable. Among the animals in these regions, are bears, lions, and tigers, as well as squirrels of various kinds. This chain is prolific in silver, yielding about a mark for each quintal of earth. It received its name from a savage tribe, which was converted by the Jesuits in 1590; but the mines, on account of their distance from the capital, have been mostly abandoned. The ridge of Topia is also called the "Sierra Madre," or mother-chain, and embraces the singular province of Nayarit, which remained
remained Pagán till the year 1718. Towards the N. the extent of this chain has not been precisely ascertained; but the Moquis, on the W. of Santa Fé, and under the same parallel, are positively classed among its inhabitants; and it probably forms one chain with that of Nabajo, and the Sierra Azul, or Blue Ridge, of Alzete, and the lofty mountains of North-west America, sending off a branch called Gomes on the W. of New Mexico, while on the E. of that province is the inferior ridge of Namh. In the vice-
royalty, the general distance of the Tupian chain from the western shore is about 140 British miles, but in some parts not above half that space. Pinkerton.

TOPIIARIA, in Botany, a name by which some authors have called the acanthus, or bear’s-breech, a plant common in the gardens of the curious.

TOPIC, in Rhetoric, a probable argument, drawn from the several circumstances and places of a fact, &c. See ARGUMENT and LOCUS.

TOPICE, topical. Topica, expresses the art or manner of inventing and managing all kinds of probable arguments.

The word is formed from the Greek, τόπος, of τόπος, place, its subject being the places, which Aristotle calls the facts of arguments.

Aristotle has written "Topics," and Cicero a kind of comment on them, to his friend Trebatius, who, it seems, did not understand them. But the critics observe, that the "Topics" of Cicero agree fo little with those eight books of Topics which pass under the name of Aristote, that it follows necessarily, either that Cicero was much mistaken, which is not very probable; or that the books of Topics, now attributed to Aristotle, are not wholly his.

Cicero defines topics, or topics, to be the art of finding arguments, "disciplina inveniendorum argumentorum."

Rhetoric is sometimes divided into two parts; judgment, called also dialeitica; and invention, called topics.

TOPICS, formed from τόπος, place, or topical remedies, in Medicine, are commonly used for what we otherwise call external remedies, i.e. such as are applied outwardly to some particular diseased and painful part.

Such are plasters, cataplasmis, blisters, ungueants, newbs, collyriums, &c.

Topics are such medicines, as by the smallness and mobility of their particles, attended for the most part with gentle acrimony, are able to make their way into the substance of the parts to which they are applied, without eroding or winding any of the solids; and thence are juelly called penetrating topics.

It may be a question how topics in medicine act. It is commonly said, that this or that medicine penetrates the pores; but the ideas annexed to such expressions do not seem very distinct. Writers on this subject have seldom been at the pains to tell us what pores they mean. We have an essay on this subject in the Med. Eii. Edinb. vol. ii. art. 4 by Dr. Armstrong, who thinks that the effects of such medicines are not owing to the particles entering the orifices of the absorbent veins; nor to the opening of the exhalent vessels on the surface of the body by these medicines; nor will he allow the particles of penetrating topics to force their way through the costs of the vessels; but he supposes that subtle medicines are conveyed, by the exalent vessels of the skin, to those parts of the smaller arteries, where the circulation is obstructed by obstruction.

The gout is never cured by topics: they may alleviate the pain for a time; but for a cure, the source of the evil must be attacked with internals.

TOPINAM, in Geography, a town of Brazil, in the government of Para, on the river of the Amazon; 80 miles S.W. of Pauis. S. lat. 2° 43'.

TOPINAMBOS, a considerable tribe of anthropophagi in Brazil.

TOPINO, a river of Italy, which runs into the Tiber, 5 miles S. of Perugia.

TOPIRIA, in Ancient Geography, a town situated in the interior of Thrace. Pliny and Ptolemy.

TOPILTZ, in Geography, a town of Bohemia, in the circle of Leitmeritz, near which the Austrians defeated the Prussians in the year 1762; 14 miles W.N.W. of Leit-
meritz. N. lat. 50° 37'. E. long. 13° 51'.

TOPWODA, a town of Silegia, in the principality of Munsterberg; 7 miles N.W. of Munsterberg.

TOPLOCA, a town of Hungary; 14 miles S.E. of St. Crot.

TOPLOC, a town of Hungary; 20 miles S.S.W. of Podolizc.

TOPOBEA, in Botany, Aubl. Guian. 476. t. 189. Jufi. 329, is probably not generically distinct from MELAS-
TOMA; fee that article, and the natural order of MELAS-
TOMA.

TOPODURTY, in Geography, a town of Hindooftan, in Myfore; 24 miles W. of Tademer.

TOPOGRAPHY, formed from τόπος, place, and γραφή, L I delist, a description or draught of some particular place, or small tract of land; as that of a city or town, manor or tenement, field, garden, house, cell, or the like; such as surveys let out in their plots, or make draughts of, for the information and satisfaction of the proprietors.

Topography differs from chorography, as a particular from a more general.

TOPOLEVA, in Geography, a fortress of Russia, in the government of Caucasus, on the Ural; 40 miles N. of Gniev.

TOPOLITZA, a town of European Turkey, in Moldavia; 12 miles S.W. of Niemecz.

TOPOLTZAN, a town of Hungary; 52 miles N.E. of Pressburg. N. lat. 48° 34'. E. long. 18° 25'.

TOPOLITZAN, (Kis,) a town and castle of Hungary; 12 miles N.W. of Bukans.

TOPOROW, a town of Austrian Poland, in Galicia; 35 miles N.E. of Lemberg.

TOPPARPOUR, a town of Hindooftan, in Oude; 15 miles E. of Bahratsch.

TOPPING of Trees, in Rural Economy, the practice of cutting or lopping off the heads of them, especially of the different sorts of hedge-row trees, which, in this last cafe, is a disgusting and disgraceful custom, now on the decline. See POLLARD Trees.

Where, however, this fort of work is to be performed, it should, in all cafes, be executed in the autumn, or very early in the spring months.

In lopping fallen trees, the different parts should be cut out and put together into separate lots, as the large arms into one, the smaller branches into another, and the small bruth, or fraggot-wood, into a third. Thus the whole may be readily disposed of, or converted to its proper use.

Topping the Lifts, board a Ship, the fame as haling the top-fall-lifts, by slackening one of them, and pulling upon the opposite one, so as to place the yard at a greater or less obliquity with the masts. See Lifts.

Topping-Lift, a large and strong tackle, employed to suspend or top the outer end of a gall, or of the boom of a main-fail and fore-fail; such as are used in brigs, sloops, or schooners. Falconer.
TOPRAK-KALA, in Geography, a town of Turkish Armenia; 6 miles S. of Kars.

TOPRAK-KALAIH, a town of Asiatic Turkey, in the province of Diarbekir; 60 miles S. of Moful.

TOPSAIL INLET, a channel between two small islands on the coast of North Carolina. N. lat. 34° 18'. W. long. 77° 48'.

TOPSFIELD, a township of Massachusetts, in the county of Essex, containing 815 inhabitants; 24 miles N.E. of Boston.

TOPSHAM, a market-town in the hundred of Wopsford, and county of Devon, England; is situated at the confluence of the rivers Clyft and Exe, 3 miles S.E. from Exeter, and 170 miles W.S.W. from London. Leland, speaking of this town, says, "Here is the great trade and rode for shippes that with this haven, and especially for the shippes and merchant-mannes goodes of Exetermen. Men of Exeter contende to make the haven cum up to Exeter self: at this time shippes cum not further up but to Apsham." The mayor was the property of the Courtenays, earls of Exeter, one of whom procured for the town the privilege of a market, and an annual fair, which are still held; the market-day being Saturday. The town confines principally of one long street, of irregular breadth, chiefly extending north and south along the eastern bank of the Exe. Many of the houses are handsome, but the greatest number have but a mean appearance. The southern extremity, called the Strand, is the most pleasant, the river flowing within a short distance of the houses, and is chiefly inhabited by persons of fortune: the view from it is extensive and beautiful. The quay is spacious and convenient, and now belongs to the chamber of Exeter, who purchased it about the year 1778. Most of the inhabitants are employed in the shipping business; the total number, as returned under the act of the year 1811, was 2871; the number of houses was 620. The church stands near the centre of the town, on a high cliff, which affords an extensive view of a noble river, distant shipping, churches glittering through groups of trees, a fertile vale, and a fine range of mountains, rising above each other in beautiful perspective, as far as the eye can reach.

In the vicinity of Topsham is Nutwell, the seat of Lord Heathfield, nephew and successor to Sir Francis Drake. According to Ridson, the manor-house was a castle, till Lord Dintmann, about the time of Edward IV., converted it into a flatly dwelling-house. Sir Francis Drake made many alterations; and it has been nearly rebuilt by the present possessor on a more ample scale, and at a very great expense.


TOPSHAM, a township of the province of Maine, in the county of Lincoln, containing 1271 inhabitants; 156 miles N.E. of Boston.—Alfo, a town of Vermont, in the county of Orange, containing 814 inhabitants.

TOR, a sea-port of Arabia, on the coast of the Red sea, formerly a place of confluence, and strong, but at present in a ruinous state and without a garrison. Near it is a ruined castle, inhabited by the Arabs; the Greeks call this place "Raitho," which might have its name from being inhabited by some of those people called by Ptolemy "Raitheni," towards the mountains of Arabia Felix; it is inhabited by Arabs, and about twenty families of the Greek church. The monks of mount Sinai have a convent here, to which they have sometimes retired when they could not conveniently stay at mount Sinai; only one priest resides in it for the service of the church. About a league north of Tor is a well of very good water, and about it are a great number of date-trees, and several springs of salt-water, especially to the south-east, where the monks have their garden. Near it are several springs, and a bath or two, which are called the "Baths of Moles," the Greeks as well as some others are of opinion that this is Elim. The greatest curiosities of Tor are the productions of the Red sea; the shell-fish of it are different from those of the seas to the north of it; but what are most peculiar to it, are the several flate vegetables, the madrepore, a fort of coral; the fungi, or mushrooms; and the red pipe coral. In 1540, Tor was taken by the Portuguese. N. lat. 28° 10'. E. long. 33° 37'.

Ton, a town of Africa, in the country of the Foulahs. N. lat. 16° 30'.

Tor Alba, a town of the island of Sardinia; 20 miles E.N.E. of Algeri.—Alfo, a town of the island of Sardinia; 13 miles S. of Oriflaghi.

Tor di Cane, a town of Naples, in the province of Bari; 9 miles S.E. of Monopoli.

Tor Point, or Hope's Nose, a cape of England, on the coast of Devonshire, forming the north point of Torbay.

TORA, a town of Egypt, on the Nile; 8 miles S. of Cairo.—Alfo, a town of Naples; 9 miles N.N.E. of Sezza.

TORACA, or Butua, a province of Africa, in the empire of Mocaranga.

TORADOR. See Bull-Fighting.

TORAITO, in Geography, a town of Thibet; 30 miles N.E. of Tchontori.

Toral, E., a sea-port of Chili. S. lat. 27° 53'.

Toraliba, in Ancient Geography, an island of the Indian sea, near the mouth of the river Indus, and 9 miles from the island of Bybaga. Pliny.

TORAR, in Geography, a town of Hindooftan, in the circuit of Surgoonga; 30 miles E.S.E. of Surgoonga.

TORAY, a commodious bay or sea-road, five miles from Dartmouth, on the coast of Devonshire, England. It is formed by two capes, that on the east called Bob's-Nose, that on the west, Berry-Head. Its general shape is semilunar, including a circumference of about twelve miles. The winding shores on both sides are fenced with great ramparts of rock; between which, in the central part, the ground from the country, forming a gentle vale, falls easily to the water's edge. Wood grows all round the bay, even on its rocky sides, where it can get footing and shelter; but in the central part with great luxuriance. This noble bay has often afforded protection to the fleets of England, which, in their full array, ride safely within its ample bosom. The prince of Orange, afterwards king William III., landed here on the 5th of November, 1688, to effect the ever memorable revolution. Near this bay is a remarkable place called Kent's-Hole, confuting of many caverns entered by subterraneous passagés, but having only one external entrance.

Tor Abbey, the seat of George Cary, esq., is finely situated amidst some ancient and noble trees, and commands an interesting prospect of Torbay, and the rocky tors in the vicinity. The house is mostly modern; though some parts of the old abbey are still preserved. It consists of a centre and two wings; one of which is connected with a cartellated gateway, having octagonal towers and battlements. Beyond this gateway is a large barn, which formerly belonged to the Abbey. It is overgrown with a venerable mantle of ivy, and decorated with loop-holes, and numerous buttresses. The ancient religious house of this place was erected by William, lord Briwire, or Burier, in the time of king John, and endowed by him with considerable revenues, which were afterwards much augmented by his son. It was appropriated for canons of the Premonstratensian order. After the Buriers, Tor Abbey
TOR

Abbey came into the Mohun family, who were succeeded by the Ridgways, and these by the Carys, who now enjoy it. At the dissolution, the revenues amounted to £367. 11s. 11d.—Gilpin's Observations on the Western Counties, 8vo. Beauties of England and Wales, vol. iv. Devonshire, by J. Britton and E. W. Brayley, 1803.

TORAY, a bay of the North Atlantic, on the east coast of Newfoundland. N. lat. 47° 48'. W. long. 52° 20'—Alfo, a town and bay on the south coast of Nova Scotia. N. lat. 45° 8'. W. long. 61° 15'.

TORBEC, a town on the south coast of Hispaniola; 9 miles N.W. of Vache island.

TORBA, a town of France, in the department of the Maritime Alps, called by the Romans Trophea Auguli, with an ancient Gothic tower. In the environs are found many remains of monuments erected by the Romans, trophies and fragments of a flatue of Augustus; 7 miles E. of Nice.

TORBIDO, Francesco, called Il More, in Biography, was born, about the year 1500, at Verona, and perhaps rather before it, as he is said to have had, for a short time, the advantage of receiving instruction from Giorgione. He afterwards became the pupil of Libera, and his own style is a compound of those of his masters, partaking of the glow of the former, with the elaborate finish of the latter. His principal occupation was in portrait, yet he left several historical pictures of considerable merit. Amongst them are some freecoes, representing the life of the Virgin, in the cathedral at Verona; and a picture in oil of the Transfiguration, in the church of S. Maria Maggiore, at Venice. He died at the age of 81, but the exact date is unknown.

TORBIDO, in Geography, a river of Naples, which runs into the Crate, near Bisignano.

TORBISON, a town of Spain, in the province of Grenada; 14 miles N.E. of Motril.

TORBOLE, a town of the Tyrofepe, on the north-east coast of lake Garda. In 1796, this town was taken by the French; 17 miles N. of Garda.

TORBUS, See Tetrado.

TORC, a mountain of Ireland, in the county of Kerry, on the south side of Lough Lane, whence the southern part is called Lough Toire.

TORCELLO, a small island in the gulf of Venice, with a town of the same name, the see of a bishop, suffragan of Venice. The town of Torcello is in a flourishing state, which it owes to the inhabitants of Altino, who were driven out of that place by Attila, and fled hither; it has also been the see of the bishop of Altino, in consequence of the bishop Paolo having emigrated to the first-mentioned place. His successor, Mauro, or Mauritrio, obtained from pope Severino the confirmation of his new see, and built here several churches, together with the elegant nunnary S. Giovanni di Torcello. More churches were built by his successor Giuliano; and Diadato, the fourth bishop, erected finally, in the year 697, the principal church of Santa Maria; which was rebuilt from the ground, in the eleventh century, by the bishop Orlo; 5 miles N. of Venice.

TORCH, Tuma, a fort of luminary, properly a stick of fir, or other resinous and combustible matter, as pine, linden, &c. more or less thick, and long; encompassed at one end with fix wax candles, which being lighted, yield a kind of gloomy brightness.

Torches are used in some church ceremonies, particularly at the proceccions of the holy sacrament in the Romish church, and at the interments of the poorer people. Formerly they were used at the funerals of those of the first rank; but tapers and flambeaux are now introduced in their stead; and frequently also called by their name.
tip of the feathers being of that colour: the tail is long and of a reddish-orange colour, and the under-feathers of the wings are of the same hue; the females are of a less elegant colour than the males, viz., a mouse-colour, variegated with white on the back, and ash-colour on the belly; what is yellow in the male birds, is also very pale in the females: it is not uncommon in Germany, and may be taught, like the stork, to imitate the human voice. Ray.

TORDYLLUM, in Botany, Τοδάλλος of the Greeks, probably the only plant of Dioscorides, is supposed by Linnaeus to owe its name to the neat orbicular figure of its seeds, which seem as if artificially wrought, or turned. The same idea is hinted by Bodezus a Stapel, in his edition of Theophrastus, 1125: but Linnaeus appears to have been more particularly led by Ambrosius, to resolve the word into Τοδάλλος, a turning leaf, and Τόρ δάλλος, to turn. The latter seems superfluous. De Theis is dissatisfied with this etymology. We can only say, in its support, that those philologists who have not traced the word to its origin, nevertheless consider it as applying particularly to the feed of the plant.—Linn. Gen. 170. Schreb. 181. Wild. Sp. Pl. v. i. 1381. Mart. Mill. Dicht. v. 4. Sm. Fl. Brit. 194. Prodr. Fl. Græc. v. i. 180. Ait. Hort. Kew. v. 2. 124. Spreng. Prodr. Umbellif. 11. Jull. 224. Tourn. t. 170. Lamarrck Illust. t. 193. Gräfin. t. 21.—Clasf and order, Pentandria Digynia. Nat. Ord. Umbelliferae.

Gen. Ch. General Umbel of many unequal rays; partial of many unequal very short ones, flat. General Involucrum of several slender undivided leaves, mostly as long as the umbel; partial unequal, exceeding the partial umbel in length at its outside. Perianth of five teeth. Cor. Unifloral irregular, radiant; all the florets fertile; partial of the diph with five equal petals, whose inflexed points render them heart-shaped; of the radius similar, but its outermost petals are very large, and deeply divided. Stam. in all the florets, Filaments five, capillary; anthers simple, roundish. Pijl. in all the florets, Germin roundish, inferior; fyles two, small, erect; stigmas obtuse. Peric. Fruit nearly orbicular, compressed, crenate at the edge, separable into two parts. Seeds two, nearly orbicular, almost flat, with a thickened, finely crenate, margin.

Eff. Ch. Involucrum long and undivided. Corolla radiant. Flowers all perfect. Fruit nearly orbicular, compressed almost flat, with a crenate margin.

Obs. Linnaeus points out the presence of efficient flaments and stylets in all the florets as the most important difference between this genus and CAULICIDES, see that article. But the latter being ovate, fricate, and befit with rigid bristles, afford, as he afterwards justly thought, a more constant and satisfactory character.

1. T. syriacum. Syrian Hart-wort. Linn. Sp. Pl. 345. Wilds. n. 1. Ait. n. 1. Jacq. Hort. Vind. v. i. 21. t. 54. Rivin. Pentap. Irr. t. 3. (T. minor sphyriacum, fennicus limbo græcum; Linn. f. Ser. 209. Mon. feot. 9. t. 16. f. 7. Gingidium latifolium; Ger. Em. 1042.)—Partial involucrum many times longer than the nearly fidele flowers.—Native of Syria and Caria. A hardy annual in our botanic gardens, flowering in July. The whole herb is hoary with short close hairs, which render it soft to the touch. Stem twelve or eighteen inches high, angular, leafy, somewhat branched, zigzag, spreading. Leaves flaked, pinnate, of three or five broad, obtuse, rounded, notched leaves; the odd one largest, slightly three-lobed, an inch and half long. Umbels lateral and terminal, on long spreading, furrowed stalks. Flowers white, few and small; but the leaves of the partial involucrum are remarkable for being about an inch in length, obovato-lanceolate, leafy, exceeding those of the general one in size. The seeds are brittle and violet, with a crisp margin.


Native of the south of France, Italy, Sicily, and the Levant. Dr. Sibthorp found this plant in various parts of Greece and the neighbouring islands. He rejoiced in it, with great probability, to be the identical specimen of Dioscorides. As a British plant it rests on the authority of Doody, who gathered specimens from Swequet, and communicated them to Ray. The latter could not mistake the species, but he hints, in his Synopsis, ed. 2. 102, that the seeds probably escaped from some garden. This is an annual, more erect than the foregoing, but, like that, downy, not brittle. The leaves are ovate, sometimes rather oblong, sometimes roundish-heart-shaped, from three to nine; flaked and lobed in the larger more luxuriant leaves, but generally unequally crenate only: the upper ones are lanceolate or oblong. Flowers large, white or pale flesh-coloured, numerous; the two outer petals, especially of the marginal flowers, remarkably radiant, one lobe of each being disproportionate large. General and partial involucrum of narrow awl-shaped leaves, the latter smallest. Seeds smooth, with an elegant, broad, thick crenate border. This plant was formerly cultivated for the sake of its seeds, supposed to promote urine and other excretions, but now out of use. The T. apulum minimum, Columa. Ecchro. 122. t. 124. f. 1, seems to us a starved variety, different, as Jacquin well remarks, in Hort. Vind. v. 3. 2, from the following, though he errs in taking it for the true apulum, which is what he originally so called. See the next species.

3. T. apulum. Smaller Hart-wort. Linn. Sp. Pl. 345. Wilds. n. 4. Ait. n. 4. Prodr. Fl. Græc. n. 631, excluding the synonyms. Rivin. Pentap. Irr. t. 2. Jacq. Hort. Vind. v. i. 21. t. 53. Spreng. n. 3. (T. humile; Desfont. Atlant. v. i. 235. t. 58.)—Partial involucrum shorter than the flowers. Leaves laciniate; the upper ones narrow. Radiant petals solitary, of two equal lobes.—Native of cultivated fields in Italy, Barbary, and Greece. A smaller plant than the foregoing, annual like that, but with several florets, whose lower part, as well as the sheaths of each flootflocks, is faggie, with long white woolly hairs. The leaves of the lower leaves, about seven, are rounded, variously jagged and notched; those of the upper fill more various in figure, narrow, mostly wedge-shaped, often deeply, and very acute, three-lobed. Umbels of usually five rays, sometimes more, four times as long as the general involucrum. Flowers white, radiant, but not in the manner of the foregoing, they having but one greatly enlarged petal, whose two obovate lobes are nearly equal. The seeds have a broader, fricated, granulated disk, with a thick, but not fo broad, border as in T. officinale. The synonyms of Bauhun, Sefel cristatum minimum, as well as thofe of Turnefort, Ray and Morifon, cited in Sp. Pl. and Hort. Cliff., all depending on Columbus's plant mentioned under our last species, are to be transferred to that. 4. T. fëfifulum. Red Dwarf Hart-wort. Scop. Carn. v. i. 134. t. 8. Wilds. n. 6. Spreng. Prodr. 11.—General involucrum of one or two leaves. Leaves ovate, lobed and notched, nearly uniform. Radiant petals solitary, of two equal lobes. Fruit briefly.—Native of the alps of Carniola.
Carniola. This appears to be nearly related to the lait, nor can we discern why professor Sprengel marks it as a doubtfully specific. We have seen no specimens. The faithful Scopolii describes it as about a foot high, with uniform leaves, composed of two pair of obliquely ovate, or half-heart-shaped, fiddle, notched leaflets, and a terminal one, broader, deeply three-lobed. The flowers are red, or pink. Fruit oval, compressed, with a thick, finely bristly, not described as crenate, whence perhaps the doubts of professor Sprengel.

5. T. maximum. Great Hart-wort. Linn. Sp. Pl. 345. Wild. n. 5. Fl. Brit. n. 2. Engl. Bot. t. 1173. Jacq. Aufr. t. 142. Scop. Carn. v. 1. 105. Tourn. Infl. 320. (Tordylium; Rivin. Pentap. Irr. t. 1. Sefli creticum majus; Bauh. Pin. 161. Ger. Em. 1950. Cauccalis major; Chfl. Hifh. v. 2. 201. Ger. Em. 1021, bad. Herculeum Tordylium; Spreng. Prodr. 12.)—Umbels dense. Leaflets lanceolate, deeply ferrated. Stem rough with deflected bristles; umbels and fruit with erect ones.—Native of waste ground, banks and hedges, in Italy, Switzerland, Germany, and, though very rarely, England, flowering from June to August. It has long been observed under the hedge on the north side of the park, at Oxford; and was gathered by Dr. Sibthorpe, met with this plant in Greece and about Constantinople. The root is annual, tapering. Stem three or four feet high, erect, branched, leafy, furrowed, clothed all over with short, rigid, pungent bristles, which point strongly downward; while the rays of the umbels, the involucre leaves, which are all short and awl-shaped, and the germen, as well as fruit, are equally rough, with erect bristles. The lower leaves consist of about five broad, ovate leaflets, deeply and irregularly notched; the upper of about three elongated narrow ones, strongly ferrated; all rough with close-pressed rigid hairs. Flowers small, reddish, with unequal petals, but not strikingly radiant. Calyx-teeth elongated, unequal. Fruit nearly orbicular, bristly, with a thick, pale, rugose border, less crisped than in the first three species, and a slightly tumid, ribbed disk. The presence of a general as well as partial involucre, does not agree with Sprengell's character of Herbacea, nor do the seeds answer to his description of that genus.

6. T. peregrinum. Oriental Hart-wort. Linn. Mant. 55. Willd. n. 3. Ait. n. 3. (Conium dichotomum; Desfont. Atlant. v. t. 246. t. 66. Caucalis Hispanica; Camer. Hort. t. 7. t. 11. Chacryis peregrina; Spreng. Prodr. n. 11. and C. dichotoma; ibid. n. 12.)—Leaves repeatedly compound, smooth, with linear decurrent segments. Fruit elliptical, furrowed, with crisped ribs and margin.—Native of the Levant. Herb annual, smooth, with a branched spreading stem, and very finely divided, triple compound leaves. General umbels of scarcely more than three or four smooth stout rays; parial small and dense. General involucrum of one or two small, ovate, pointed, white-edged leaves; parial of several similar unequal ones. Flowers small, scarcely, if at all, radiant, white, or slightly reddish. Fruit thick, almost <a href="https://www.ea.png">fruit</a> more elliptical and acute than in the rest of the genus, having a thick, crisped edge, and three greatly elevated, less strongly corrugated, ribs at each side. The genus of this plant is certainly very ambiguous. It might perhaps be safely referred to Conium, with which its habit more agrees, especially as the fruit answers but indifferently to the idea or definition of a Tordylium.

T. latifolium, Anthriscus and nodiflorum of Linnaeus are now generally referred to Conica. Sprengel however has restored the genus Torilis of Adanson and Gartner; see that article, to which the two latter belong.

We shall have occasion to speak of the difficulties frequent in the generic distribution of this tribe, when we come to the article Umbelliferae.

TORE, Torus, in Architecture, a large round moulding, used in the bases of columns.

Daviler derives the word from the Greek, τορος, a table, to which it bears some resemblance; or from the Latin torus, a bed, as being supposed to represent the edge of a bed or quilt, swelled out with the weight of the incumbent column.

The tore is also called gross botan, and tendin. It is the significs that distinguishes the torus from the astragal.

The bases of Tuscan and Doric columns have but one tore, which is the smaller; but a smaller, or under, or bigger.

TOREE, in Geography, a cirque of Bengal, bounded to the north by Pamow, Koonda, and Ramgor; on the east by Ramgor; on the south by Chuta and Nagpour; and on the west by Palamow; about 32 miles long, and 24 broad. Toree is the capital.—Also, a town of Hindoos, and capital of a cirque of the same name, in Bengal, 210 miles W. of Calcutta. N. lat. 22° 35'. E. long. 82° 55'.

TOREK, a town of Hungary, near the Theyse; 40 miles W.S.W. of Debreczin.

TORELLI, LELIO, in Biography, a learned jurist, was born at Fano in 1489. Having studied Greek and Latin at Ferrara, he graduated at Perugia, where he studied law. The law respectable of magistracy which he occupied, was that of grand chancellor and first secretary to the dukes of Tuscany, Cosmo, and his son Francesco. He was also advanced to the rank of Florentine nobility, and the title of senator, and was consul to the academy of Florence, where he died in 1576, universally esteemed for his mental and moral qualities. He adorned himself with polite literature, in which he was a proficient, and with writing Latin and Italian poetry; but the subject of his serious study was jurisprudence. He was the author of several works on the law; but he was principally engaged in preparing a new and correct edition of the Pandects, availing himself of the Pisan or Florentine MS. This magnificent edition appeared from the Torrentian press in 1553, in three large volumes folio. His son Francesco was his associate in the labour of this work; but the son died before the father. Gen. Biog.

TORELLI, POMPONIO, a poet and man of letters, and count of Montechiarugola, was educated at Padua, where he resided eleven years. Upon his return to his native place he married, and in 1584 was sent on a mission to Spain; and having succeeded in the object of it, he afterwards employed himself chiefly in literary compositions. His works were numerous, among which we may reckon a treatise "De Debito del Cavalleria," 1566; five tragedies, viz. "La Meio- rope," "Il Tancredii," "La Galatea," "La Vittoria," and "Il Pudlori." His MSs., which were also numerous, are preserved at Reggio. He died in 1608. Thieluchi. Gen. Biog.

TORELLI, GIUSEPPE, a native of Verona, member of the Philharmonic society, and principal violin of San Petronio, at Bologna. In 1701 he was concert-master at the court of Aulphach, and his performance on the violin acquired him great reputation. He was a voluminous composer for that instrument. His productions, however, are so superannuated, as almost to cease to be music; for having little original melody, and no uncommon touch of harmony or modulation, there is nothing left to make amends for the want of novelty and elegance. This composer, besides the numerous works which he published for violins during his life,
life, of which the titles are recorded in Walther; left behind him an incited work, which was published in 1709 by his brother, Felice Torelli, after the author's decease, under the title of "Concerti grossi con una paurosa per il fantastismo utile," consisting of twelve concertos in eight parts. These concertos have been thought the bulk of his productions, and the model of grand concertos for a numerous band. Quantz, Arte di La Flute.

Torello, in Geography, a town of Naples, in Principato Ultra; 3 miles W.N.W. of Conza.—Alto, a town of Spain, in Catalonia. In the year 1664, a battle was fought near this town between the French and Spaniards, in which the former were victorious; 6 miles N. of Vique.

Torena, a town of New Navarre; 100 miles S.S.E. of Caza Grande.

Torenia, in Botany, was so called by Linnaeus, after his pupil, the Rev. Olof Torén, or Toreen, chaplain of a ship in the service of the Swedish East India Company, who studied at Upsal, in order the better to qualify himself, as a naturalist, for a voyage to China. He communicated to his great botanical preceptor many scarce plants, and addressed him a series of letters, descriptive of the voyage, in which, though various other subjects are touched upon, natural history makes a principal figure. These were published at the end of Obbeck's Voyage, (see Osbeckia) and translated with that work into English, by Dr. Forster. Soon after they were written, the author died, apparently at an early age, near Nafinge, in Sweden, Aug. 17, 1753. —Linn. Gen. 311. Schreb. 407. Willd. Sp. Pl. v. 3. 265. Mart. Mill. Diet. v. 4. Brown Prodr. Nov. Hol. v. 1. 440? Juff. 122. Lamarck. Illutr. t. 523.—Clas. and order, Didynamia Angiosperma. Nat. Ord. Peronema, Linn. Serpulibarbis, Juff.

Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, angular, permanent, two-lipped; the lips toothed, unequal. Cor. of one petal, ringed, twice the length of the calyx; its upper lip nearly entire; lower three-cleft, the middle segment most prominent. Stam. Filaments four; the two uppermost simple; two lowermost longest, with a lateral branch or tooth; authors of two vertical, oblong, rather distant lobes, converging in pairs, their respective lobes closely contiguous. Pet. Germen superior, elliptic-oblong; style thread-shaped, swelling upwards; stigma of two parallel flat plates. Peric. Capsule elliptic-oblong, of two cells, and two undivided valves, with a parallel unconnected partition. Seeds numerous, roundish, attached to the partition.


Obs. We take our characters of this genus principally from the original Linnaean species, and therefore hesitate to admit, after the example of our learned friend Mr. Brown, any species with a regular five-toothed calyx, such as Capraia crassiflora, Linn. and Torena scabra of Brown. We also omit T. fassica of the last-mentioned author, and Antirrhium hexandrum of Forster, because we have not seen them. The strange name of the latter probably alludes to the lateral branches of two of the filaments, by which therefore it should seem to be a good Torena. Yet these appendages appear to be wanting in T. cordifolia of Roxburgh, if we may trust the figure, nor do we find them clearly in our T. obtusifolia. The two-lipped tubular calyx seems to us the most important mark.

1. T. ajatica. Smooth creeping Torena. Linn. Sp. Pl. 862. Willd. n. 1. Osbeck's Travels, English ed., v. 1. 337. Lamarck f. 1. (T. glabra; Osbeck It. 210. "Kaka-pu; Rheede Hort. Mal. v. 9. 103. t. 53.")—Smooth, with a creeping stem. Leaves stalked, ovate, acute, serrated.—Native of China, in watery places, flowering in September. The whole herb is smooth, except at the joints, and at the insertion of the leaves. Stem a long, branched, square, leafy, creeping by means of fibrous roots, which seem to be perennial. Leaves hardly an inch long, opposite, smooth, with shallow serrations; on stalks half about their own length. Flowers axillary, solitary, opposite; on long simple stalks, purple, large and handsome, not unlike those of Maurandia; see that article. The small teeth, or points, of the calyx are narrow, close together, and its angles are winged.

2. T. biflora. Hairy Torena. Willd. n. 2. Lamarck f. 2. Mart. Mill. Diet. n. 2.—Hairy, with an erect stem. Leaves ovate, serrated, on short stalks.—Native of China. Linnaeus thought it a variety of the first species, but it is much more hairy, with smaller flowers; the calyx fearfully winged, except at the very base. The teeth of that part appear to become more deeply separated as the calyx enlarges.

3. T. ciliaris. Fringed Torena.—Leaves ovate, acute, slightly hairy, serrated, on long stalks. Angles of the calyx broadly winged, serrated.—Native of the Nicobar Islands. Communicated by the Right Hon. Sir Joseph Banks. The stem appears to be erect. The leaves are an inch and half long, finely serrated, slightly beprinkled with hairs, oblique at the base. Foxtails nearly half the length of the leaves, channelled, hairy. Flowers opposite, about as large as the first species. Calyx remarkable for its broad wings, fringed with short upright hairs; its teeth slender and hairy.

4. T. cordifolia. Heart-leaved Torena. Roxb. Corom. v. 2. 32. t. 161. Mart. Mill. Diet. n. 3.—Nearly smooth. Stem branched, spreading. Leaves ovate-heart-shaped, serrated. Calyx without wings.—Native of the East Indies. Found by Dr. Roxburgh, in the moist pastures about Samulecoth, flowering during the cold season. The root is fibrous, simple, apparently annual. Stem erect, six inches high, square, leafy, bushy, with numerous croft branches. Leaves an inch long, paler beneath, on stalks half that length. Flowers about the tops of the branches, axillary, on long slender stalks. Calyx rather swelling, angular, but defusive of wings, two-lipped, with five small teeth. Corolla pale purple, twice the length of the calyx. Stamens, according to Roxburgh, without any lateral branch or tooth.

5. T. obtusifolia. Blunt-leaved Torena.—Leaves roundish-ovate, obtuse, stalked, wavy, somewhat toothed, smooth. Stem creeping. Lips of the calyx unequal, abrupt.—Sent from Mexico by Mutis to Linnaeus. The specimens were laid into the genus Gratola, but seem never to have been defcribed. The whole herb is smooth, branched, succulent, creeping; in habit not unlike Veronica Beccabunga, which like plant seems to grow in swampy places. Leaves ribbed, broad, an inch long. Flowers axillary, stalked, solitary, the size of T. cordifolia. Calyx angular, not winged, oblique at the mouth; its upper lip prominent, obtuse, slightly emarginate; lower much shorter, abrupt, with three small distant teeth. Corolla twice the length of the calyx, white or yellowish; internally some what hairy. The insertion of two of the flaments into the upper part of the corolla agrees with T. ajatica; we are not sure whether the other pair has any lateral teeth, but there is some appearance of such appendages, conglutinated as it were.
were with the corolla. The anthers are roundish, combined in pairs. Germin ovate, pointed. Stigma between the anthers, of two thin plates. The parts of the flower in our specimens fearefully admit of sufficient examination to determine the genus of this plant with certainty, but it appears to agree with Torenia better than with any other.

TORENTO, in Geography. See York.

TOREUMATOGRAPHY, a Greek term, signifying the knowledge, or rather defcription, of ancient sculptures, and baffo-relieves.

The invention of toreumatoigraphy is owing to Phidas, and its perfection to Polyceusus: the Italian gravers have let a great deal of light into the toreumatoigraphy.

TOREUTICUS, torqueus, formed from the Greek torqueo, lath, of torque, terebro, perforo, that part of sculpture called turning.

TORFAEU, THORMOUS, or THORMO TORVESEN, in Biography, an eminent historian, was born in a small island called Etnoe, on the southern coast of Iceland; and having laid the foundation of his education at the school of Skalholt, he spent three years, from 1654 to 1657, in the university of Copenhagen. In the spring of 1659 he was captured, in a voyage from Christianand on board a Dutch vessel, by a Swedish cruiser, and carried to Jutland. Upon his release and arrival at Copenhagen, he was appointed the king's interpreter for Icelandic antiquities. In 1662 he visited Iceland, for the purpose of collecting old MSS.; and in the accomplishment of his object, was much encouraged and assisted by the bishop of Skalholt. In 1663 he returned to Denmark with a variety of valuable materials; in 1664 he was made secretary to the district of Stavanger; and in the following year he married: but in 1667 he resigned his office, and was appointed antiquary to the king. Upon the death of his father and brother he made a voyage to Iceland, for the purpose of securing his property; and in the same year he went to Amsterdam; but on his return he was shipwrecked at Skagen, and obliged to travel to Aarhus by land. Embarking for Zealand, he encountered a storm near the island of Samoe, and landed at Senas, where he was wantonly attacked by an Icelander, and in self-defence killed his antagonist. Upon this he was arrested, tried, and condemned to suffer death. Upon an appeal first to a superior court in 1672, and afterwards to the king, it was ultimately determined that he should pay a fine of 100 dollars, and be released. The king, however, was displeased, and deprived him of his salary and office; upon which he retired to Norway, where he lived without any employment till the year 1682, when he was appointed royal historiographer and aflieor in the confilory, with a stipend of 600 dollars per annum. Thus circumscribed, he commenced his history of Norway; but in 1706 he was obliged to rest from the prosecution of it by a fever, which he had brought down to the union of Calmar, and to resign the completion of it to professor Reitzer. Having lost his wife in 1695, he married a second in 1709; and in 1719 died without issue. Torfaeus was a man of confiderable learning, and particularly conversant with ancient history and antiquities; and he was much respected by the northern sovereigns, Frederick III., Christian V., and Frederick IV. His works, actually published and left in MS., were very numerous. The collection of his MSS., relating more especially to the history of Iceland, amounts to several volumes folio, and is preferred in the king's library at Copenhagen. Gen. Biog.

In connection with Torfaeus, we shall here mention the learned and eminent Arnas Magnus, the son of an obscure country priest in the western part of Iceland, and more con-

spicious for his devotion to literary pursuits than Torfaeus. Raifed from a humble and obscure situation by extraordinary efforts of talent and industry, he attained, in 1694, at the age of 31 years, the honourable station of professor of philosophy in the university of Copenhagen; and a few years afterwards, he was invested with the offices of professor of northern antiquities and secretary of the royal archives. Inceflant in his literary labours, he composed several important works, and collected at great expense a magnificent library, serving to illustrate the literature and antiquities of the North, and more especially the literature of his native island. The greater part of this library was unhappily confumed by the fire which happened at Copenhagen in 1728; and the unfortunate Magnus was witness to the almost total destruction of the fruits of many years' labour. He died two years after this disastrous event, and bequeathed to the library of the university the remnant of his literary treasures. His friend and favourite pupil, Finnur Jenfson, was another of the eminent Icelanders, who, during the last century, have contributed to preserve unimpaired the character and respectability of their country. Created bishop of Skalholt in 1754, he retained this office during the remainder of a long life, wholly devoted to the improvement and happiness of his fellow-citizens. In his admirable work, the "Ecclesiastical History of Iceland," written in elegant Latin, and published at Copenhagen in 4 vols. 4to. he has bequeathed to his countrymen a monument of extensive erudition, genuine piety, and warm patriotic feelings, which will continue as one of the most illustrious monuments of their literature. Mackenzie's Travels in Iceland.

TORFVE, in Geography, a town of Sweden, in Weft Gothland; 75 miles N.E. of Uddevalla.

TORGA, a town of the principality of Georgia, in the province of Caket; 85 miles S.E. of Tiflis.

TORGAV, or Torgaw, a town of Saxony, in the margravate of Meiffen, on the Elbe. It was anciently the head place of a peculiar feignoiry, which passed in fief from the electors of Saxony, of the Aefcanian line. In the year 1530, the seventeen articles of the Protestant doctrine were presented at this place, to the elector John; and in 1576, the Torgau writing was made here, out of the Swabian Concordat and the Maulbrun Formula; from which writing, the year following, the Formula Concordiae was drawn up at Kloffer Bergen. In the year 1745, the Prussians passed the Elbe here; in the year 1756, they fixed their military office at this place; and in the year 1757, they broke down the bridge thrown over the Elbe. In the year 1760, the Austrians, under marshal Daun, were defeated by the Prussians, commanded by the king in person. The Austrians lost 200 officers, and 7000 men prisoners. Marshal Daun himself was wounded. The Prussians had 2500 men killed, and 4000 wounded; 28 miles E.N.E. of Leipic. N. lat. 51° 32'. E. long. 13° 31'.

TORGAU, Convocation of. See Form of Concord.

TORGEISKOI, in Geography, a town of Russia, in the government of Irtusk; 24 miles N.N.W. of Nertchinsk.

TORGE, a small island in the North sea, near the coast of Norway. N. lat. 65° 30'.

TORGELOW, a town of Anterior Pomerania, on the Ucker; 9 miles N. of Pafewalk.

TORGOCH, in Ichthyology. See Charr.

TORGOTS, in Geography, a tribe of the Mongoles, who formed themselves into a distinct horde much later than the other Kalmuck branches. Removing at first from the steppes Soongares, they marched westward till they came to the steppes on the Volga, where they finally settled, and received
received from the Russians the name of the Volgaic Kal- 
mucks. In 1616, this horde is said to have submitted to the 
Russian empire; and on crossing the Urals in 1662, their 
number amounted to 50,000 khitkies. In 1761, the 
Russian government entered into an agreement with this 
opulent and powerful horde, which restricted the authority 
of the khans to narrower bounds, and excited such discon- 
tents, that they returned in the winter of 1770 and 1771, 
to the amount of between 55,000 and 60,000 khitkies, 
over the ice of the river Urals, across the Kirghisian steppe, 
into the Soongarye. The greater part of the Soongarees 
took part in this migration; only some few anaks of the 
Torgots remained behind; but the Tartars in subjection 
to the horde refused to follow them. The fugitives were 
pursued by order of the Russian government; but most of them 
made their escape. Numbers indeed perished on their 
journey; many were taken prisoners by the Kirghises; and 
those who reached the place of their destination, put them- 
selves under the protection of the Chinese government, who 
gave them a kind reception, but afterwards, for political 
reasons, treated them with great severity. The Torgots, 
with the Khosholes and Soongarees, who flaid beyond or 
were brought back from their flight, are distributed among 
the Derbets; and wander, with their flocks and herds, in 
the flemes between the Don and Volga, from the line of 
Tseritzin as far as Caucasus, and between the Volga and 
the river Urals, from the Irghis quite to the Caspian; con- 
fsequently in the governments of Saratof and Avarakhan, 
and in the seats of the Cossacks of the Don. Tooke's Rufia, 
vol. i.

TORGOWITZA, a town of Russian Poland, in the 
palatinate of Bracal; 20 miles E. of Human.

TORGSAKER, a town of Sweden, in the province of 
Angermannland; 25 miles N. of Hernosand.

TORGHOUT, a town of France, in the department of 
the Lys; 10 miles S. of Bruges.

TORIES, or TORYs, a party or faction in England, 
opposite to the Whigs.

These two celebrated parties, which have so long divided 
our country, will make a considerable article in the English 
history, nothing inferior, in many respects, to that of the 
Guelfs and Ghibellines. The division has gone so deep, that, 
it is presumed, no Englishman, who has any concern or 
principles at all, but inclines more to one side than the other; 
for which reason, we shall borrow our account of them from 
the mouths of foreigners, who may be supposèd more 
impartial; and particularly from M. de Cize, a French officer, 
some time in the service of England, who has written the 
History of Whigism and Toryism, printed at Leipzic, 
anno 1717; and M. Rapin, whose Dissertation fur les 
Weights & les Torsys, printed at the Hague the fame year, 
is well known; and reprinted at the close of the second 

During the unhappy war which brought king Charles I. 
to the scaffold, the adherents of that king were first called 
Cavaliers, and those of the parliament Round-heads; which 
two names were afterwards changed into those of Tories and 
Whigs, on the following occasion.

A kind of robbers, or banditti, in Ireland, who kept on 
the mountains, or in the islands formed by the vast bogs of 
that country, being called Tories, a name they still bear in- 
differently with that of Rapparees; the king's enemies ac- 
cusing him of favouring the rebellion in Ireland, which 
broke out about that time, gave his partisans the name of 
Tories; and on the other hand, the Tories, to be even with 
their enemies, who were closely leagued with the Scots, 
gave them the name of Whigs, who living in the fields and 
woods, fed much on milk; whig signifying whay. But for 
a more probable etymology of whig, see Whigs.

The Cavaliers, or Tories, had then principally in view 
the political interest of the king, the crown, and the church 
of England; and the Round-heads, or Whigs, proposed 
chiefly the maintaining of the rights and interests of the 
people, and of Protestantism. Nor have the two factions 
yet lost their first views; though their first names, Cavalier 
and Round-head, be now entirely diluted.

This is the most popular account; and yet it is certain 
the names Whig and Tory were but little known till about 
the middle of the reign of king Charles II. M. de Cize 
relates, that it was in the year 1678, that the whole nation 
was first observed to be divided into Whigs and Tories; and 
that on occasion of the famous deposition of Titus Oates, 
who accused the Catholics of having conspired against the 
king and the state,—the appellation Whig was given to 
such as believed the plot real; and Tory to those who held 
it fictitious.

When we compare, says Mr. Hume (Eft. ix.), the fac- 
tions of Whig and Tory with those of Round-head and 
Cavalier, which were merely parties of principle, the most 
obvious difference that appears between them, the confusions 
in the principles of "passive obedience" and "indefeasible 
right," which were but little heard of among the Cavaliers, 
but became the Universal doctrine, and were esteemed the 
true characteristics of a Tory. If these principles were 
pulled into their most obvious consequences, they imply a 
formal renunciation of all our liberties, and an avowal of 
absolute monarchy; since nothing can be a greater absurdity 
than a limited power which must not be refitted, even when 
it exceeds its limitations. But as the most rational prin- 
ciples are often but a weak counterpoise to passion; it is no 
more than the absurd principles were found too weak for 
that effect. The Tories, as men, were enemies to op- 
pression; and also as Englishmen, says Hume, they were 
enemies to arbitrary power. Their zeal for liberty was, 
perhaps (says this partial writer), less fervent than that 
of their antagonists; but was sufficient to make them forget 
all their general principles, when they saw themselves openly 
threatened with a subversion of the ancient government.

From these sentiments arose the Revolution; an event of 
mighty consequence, and the firmest foundation of British 
liberty. The conduct of the Tories, during that event 
and after it, will afford us a true insight into the nature of 
that party. In the first place, they appear to have had the 
genuine sentiments of Britons in their affection for liberty, 
and in their determined resolution not to sacrifice it to any 
abstract principle whatsoever, or to any imaginary rights 
of princes. This part of their character might justly have 
been doubted of before the Revolution, from the obvious 
tendency of their avowed principles, and from their com- 
pliance with a court, which seemed to make little secret 
of its arbitrary desig ns. The Revolution afforded them to 
have been, in this respect, nothing but a genuine "court 
party," such as might be expected in a British govern- 
ment: that is, "lovers of liberty, but greater lovers of 
monarchy." It muñ, however, be confessed, that they 
carried their monarchical principles further, even in practice, 
but more so in theory, than was in any degree consistent 
with a limited government. Secondly, Neither their prin- 
ciples nor affections concurred, entirely or heartily, with 
the settlement made at the Revolution, or with that 
which has since taken place. This part of their character 
may seem opposite to the former; since any other settle- 
ment in those circumstances of the nation, must probably 
have been dangerous, if not fatal, to liberty. But the 
heart
heart of man, says our author, is made to reconcile contradiction; and this contradiction is not greater than between passive obedience, and the refusal employed at the Revolution. A Tory, therefore, since the Revolution, may be defined in a few words to be "a lover of monarchy, though without abandoning liberty; and a partisan of the family of Stuart," as a Whig may be defined to be "a lover of liberty, though without renouncing monarchy; and a friend to the settlement in the Protestant line."

Some, who will not venture to assert, that the real difference between Whig and Tory was lost at the Revolution, seem inclined to think, that the difference is now abolished, and that affairs are so far returned to their natural state, that there are at present no other parties among us but Court and Country; that is, men who, by interest or principle, are attached either to monarchy or liberty. The Tories have been so long obliged to talk in the republican style, that they seem to have made converts of themselves by their hypocrisy, and to have embraced the sentiments, as well as language of their adversaries. There are, however, very considerable remains of that party in England, with all their old prejudices.

The preface differs, says an anonymous writer (Edinb. Rev. N° 3 L.), between a moderate Tory and a moderate Whig, "that a Tory is more influenced by loyalty, and a Whig by the love of liberty; that a Tory considers liberty as the second interest of society, while a Whig regards it as the first." Loyalty is denominated by Mr. Hume "that noble and generous principle, inferior only in excellence to the more enlightened affection towards a legal constitution."

We should here confine ourselves to the Tories; and for what regards the Whigs, refer to that article; but since, by comparing and confronting the two parties together, both the one and the other will appear in the stronger light, it would be imprudent to separate them; so that we neither choose to say the Whigs, and refer them thither.

The factions we are speaking of, may be considered either with regard to the state, or to religion. The state Tories are either violent or moderate: the first would have the sovereign to be absolute in England, as in other countries, and his will to be a law. This party, which is not very numerous, has yet been considerable. 1. On account of its leaders, who have been lords of the first rank, and generally ministers and favourites. 2. In that, being thus in the ministry, it engaged the church Tories to maintain stiffly the doctrine of passive obedience. 3. Because they have been frequently supported by the crown.

The moderate Tories would not suffer the king to lose any of his prerogatives; but neither would they sacrifice those of the people.

The state Whigs, again, are republican or moderate: the first, according to our author, are the remains of the Long parliament, who took in hand to change the monarchy into a commonwealth: these make so tender a figure, that they only serve to strengthen the party of the other Whigs. The Tories would pernecize the world, that all the Whigs are of this kind; as the Whigs would make us believe, that all the Tories are violent.

The moderate state Whigs are much in the same sentiments as the moderate Tories; and define the government may be maintained on its ancient foundation, and that the king may be reduced to an incapacity of abusing his power, by leaving him the possession of his just rights: all the difference is, that the moderate Tories lean a little more to the side of the king, and the moderate Whigs to that of the parliament and people.

Before we consider our two parties with regard to religion, it must be observed, that the Reformation, as carried on to a greater or less length, divided the English into Episcopalian and Presbyterian or Puritans: the first contended, that the episcopal jurisdiction should be continued on the same footing, and the church in the same form, as before the Reformation: the latter maintained, that all ministers or priests had equal authority; and that the church ought to be governed by presbytery, or consistory of priests and lay elders. See Puritans.

After long disputes, the more moderate of each party relaxed a little of their stiffness; and thus formed two branches of moderate Whigs, and moderate Tories, with regard to religion; but there were others who kept to their principles with inconceivable firmness: and these constituted two branches of rigid Episcopalians and Presbyterians, comprised under the general names of Whigs and Tories; in regard, the first join the Tories, and the latter the Whigs.

The former consisted of rigid churchmen, who were again against the least change in the discipline of the church, while the more moderate among the ecclesiastical Whigs were less scrupulous and obstinate, and may be called the low or moderate churchmen. See High Church and Non-jurors.

The latter were the rigid Presbyterians, who would be contented with nothing less than the destruction of the hierarchy, while the more moderate among them would have been satisfied with much less, and put up, says Mr. Rapin, with a bare toleration.

From what has been observed, we may conclude, that as the names Tory and Whig have a regard to two different objects, they are equivocal, and of consequence ought never to be applied without expressing in which sense it is done; for the same person may be, in different respects, both Whig and Tory.

For the rest, the general motives that have formed and kept up the two parties, appear in the main to be no other than the private motives of particular persons: self-interest is the primus mobile of their actions: ever since the rise of these factions, each has struggled earnestly to get the advantage over the other; insomuch as from such superiority accrue places, and honours, and promotions, &c. which the prevailing party usually distributes among its own members, exclusive of the contrary party.

There are, however, men belonging to each of these parties, though the distinction is almost worn out, who act from conviction; some of whom are for the extension, and others for the limitation of royal prerogative, with a view to the good of the state, as their principles lead them to form different notions of the most effectual method of promoting it. The names, it is true, are almost sunk into oblivion; but the operation of the distinguishing sentiments of Whigs and Tories is discoverable in every period of the English history; and the true interest of a limited monarchy, always inseparably connected with the rights of the people, renders the distinction of importance, and should prevent its ever being disregarded.

It is with the Whigs and Tories on those points, which have discriminated the two parties, says Dr. Gregory Sharp, as it is with all other sects of men under the agitation of hope and fear, ambition and interest; they tighten or relax their principles as suits best their convenience. When the Tories have had the exerise of the powers of the prerogative, they have been eager to extend those powers.

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when the edge has been turned against them, they have been as eager in the defence of popular liberty; and in like manner the Whigs, who withflood the form, have melted in the fun-fine, fo that a point of court complinance, the adminiftrations of the one have differed very little from thofe of the other. Holberg's Int. to Universal History, by Sharpe, p. 260.

As to the characters commonly attributed to the Whigs and Tories; the Tories, fays M. Rapin, appear fierce and haughty: they treat the Whigs with the greatest contempt, and even sometimes with rigour, when they have the advantage over them: they are very hot and vehement, and proceed with a rapidity, which yet is not always the effect of heat and transport, but has its foundation sometimes in good policy: they are very fubje& to change their principles, as their party prevails or is humbled.

If the rigid Presbyterians prevailed than ft of the Whig party, it would not be less hot and zealous than that of the Tories; but it is faid they have not the direction thereof; which gives room to affirm, that those at the head of the Whig party are much more moderate than the chiefs of the Tories: add, that they ufually conduct themfelves on fixed principles, proceed to their end gradually, and without violence; and their florifhes is not lefs founded on good policy, than the hiftories and precipitation of the Tories. Thus much fays our author may be faid to the advantage of the moderate Whigs, that, in the general, they maintain a good caufe, viz. the confitution of the government as by law eftablifhed.

TORIESDALE, Head, in Geography, a cape on the N. coft of Scotland. N. lat. 58° 30'. W. long. 4° 10'.

TOLLIS, in Botany, a genus of Adanfon's, whose name perhaps may have been fabricated from τουξ, to carve or embos, in allusion to the feeds, which, however, answer lefs to this idea than thofe of many neighbouring genera.


Adanfon distinguifhes this genus from Caucaulis, (fee that article,) by the want of a general involucrum, and the flendernefs of the leaves which compose the partial ones. There are principles of Arcted and Linneus, but not generally reckoned among their kind. Gætn. and more recently Sprengel, distingui#h Tolls by the diferifles of the fruit being feattured equally over its whole surface; not, as in Caucaulis, ranged along its ribs. As one of the fpecies, Antirhicus, ufuallly, if not confantly, is furnifhed with a general involucrum, and another, nodofa, is not always deftitute of one; and as the defcription of the diferifles is a very obfcrue, if not precarious, charafter; which appears by the diferagreement between Gætn. and Sprengel, concerning the fpecies supposed to compose this genus, we prefer leaving our three British ones at leaft in Caucaulis, where they are placed in the Flora Britannica.

TORM, in Geography, a town of New Mexico, in the province of Hiaqui; 35 miles S.W. of Riochicó.

TORIN Rocks, a clufter of rocks near the S.W. coft of the ifland of Mull. N. lat. 56° 16'. W. long. 6° 28'.

TORISA, a river of European Turkey, which runs into the Mariza, at Adrianople.

TORKSEY, John, in Biography, author of one of the moft impor tant tratfes in the MS. of Waltham Holy Cross, at prefent in the po{f{ion of the marquis of Lan
downe. This tract, which is the fifth in the collection, has been already defcribed. See Power, Lionel.

TORLA, in Geography, a town of Spain, in Aragon; 16 miles E. of Jaca.

TORM, Eric Olaus, in Biography, a Danoifh writer, was born in 1607, and educated in the School of Viborg. Having finifhed his education, and spent many years in the capacity of private tutor, he fett out on his travels with a view to further improvement; and visited Oxford, Leyden, and Paris; and in 1736 he was appointed professor of mathematics in the university of Copenhagen, and afterwards librarian and preacher in one of the churches. He died in 1667. He was the author of many works, chiefly mathematical and historical. Gen. Biog.

TORME, in Geography, a town of Spain, in Old Caf
tilde; 15 miles N. of Frias.

TORMENT, Cape, a cape on the coast of Canada; 24 miles below Quebec.

TORMENTILLA, in Botany, a diminutive of tormentum, a pain or gripping, supposed to have been choen to deignicate this little altrigent plant, becaufe it served to alleviate pains of the teeth, or of the bowels, tormentina. But it may lmply perhaps apply to that affringency, which, confidering the primary fenee of the above words, the name feems to indicate.—Linn. Gen. Pl. 256. Willd. Sp. Pl. v. 2. 1112. Mart. Mill. Dic. v. 4. Sm. Fl. Brit. 552. Juff. 357. ‘Tourn. t. 153. Lamarec Illustr. t. 444.—Clafs and order, Icycandra Polygnia. Nat. Ord. Senti
cina, Linn. Rafaeae, Juff.

Gen. Ch. Cal. Perianth inferior, of one leaf, flat, cut half way down into eight fegments, of which four alternate ones are smaller and more acute. Cer. Petals four, inverfely heart-shaped, flat, spreading, their claws inferted into the calyx. Stam. Filaments fifteen, awl-shaped, half the length of the petals, inferted into the calyx; anthers roundih, fimple. Pifh. Germans eight, small, collected into a little round head; fyles thread-shaped, the length of the flaminis, inferted laterally into the germenis; stigma obtufe. Peric. none. Receplate of the feeds dry, minute, covered entirely by them, and enclosed in the calyx. Seeds eight, roundih-oblong, corrugated, bluntly pointed.


Obf. Linneus remarks, that this genus differs from Potentilla, (fee that article,) in characters founded on number only, and therefore they might be united. Schreber, and recently Dr. Neftler of Straflburgh, have adopted this meafure, the latter uniting Comarum alo to Potentilla. As the numerical differences are extended throughout the parts of fructification, though fome of them are acknowledged to vary, and the two fpecies of Toremilla accord fo well in habit, we are induced to follow Linneus, Tournefort, and Juffieu, in retaining the genus; for if number were in this cafe entirely overlooked, we do not perceive how Sin
dalia could be fuppofed. (See that article, Comarum, and Rosaces.) It has been afferted, that botanifhes who retain fuch genera as this, viz. Ray, Tournefort, Linneus, and Juffieu, will not gain much fame with pofterity; but of this, we humbly presume, pofterity will be the judge.

wiry, often procumbent. Leaves ternate, lanceolate, rather hairy, deeply ferrated, with a pair of deeply cut Ripulius. Flowers bright yellow, on long, simple, foliate, lateral flasks. The late Mifs Johnes of Hafed found one plant in the romantic spot, whose flowers were double, a rare inf lance.

2. T. reptans. Trailling Tormentil. Linn. Sp. Pl. 716. Wildn. n. 2. Fl. Brit. n. 2. Engl. Bot. t. 864. (Pentaphyllum reptans alatum, folis profundius ferratis; Pl. Ox. t. 9. f. 5.)—Stem prostrate. Leaves flaked.—Native of banks and shady places, in England and Germany, but not common. We once gathered it in a lane at Brighoune, near Halifax, Yorkshire, in the middle of summer. The root, though perennial, is much smaller and slenderer than in the foregoing. Stems few, eighteen or twenty inches long, often simple, entirely prostrate, but not creeping. Whole herb finely hairy, of a light green. Radical leaves on long flanks, of five, obovate, deeply ferrated leaflets; those on the stem of three only, on shorter flanks; the floral ones sussile, narrow, and often entire. Stipules united to the base of the footflasks. Flowers twice as large as the foregoing, on very long flanks, opposite to the leaves.

Tormentilla, in the Materia Medica. The root of the common tormentil, or upright feepfoil, tormentilla erecta, is the only part that is used in medicine. It is knotty, exter- nally blackish, and internally reddish. It has a strong ftyptic taint, but imparts no peculiar pailid flavour. As a proof of its powerful astringency, it has been sbstituted for oak-bark in the tanning of skins for leather. Its active matter is therefore chiefly tannin; the infusion in boiling water being copiously precipitated by solution of ashflakes, and tinking a deep black with sulphate of iron. This root has been long held in high estimation by physicians as a very useful astringent; and having little pailin, it becomes peculiarly adapted to cafes where the heating and ftitulating medicines of this class are lefs proper, as phthisical diarrhea, diarrhoea cruenta, &c. Dr. Cullen thinks it has been justly commended for every virtue that is competent to astringents; and he adds, that he has found it, both by itself and as joined with gentian, curare intermittent fevers, when given in fubflance and in large quantities. It gives out its astringency both to water and rectified spirit, but most perfectly to the latter; the extracts, particularly the spirituous, obtained by infipification, are intensely ftyptic. The root is generally given in powder, from half a drachm to one or more for a dose; but it is more generally given in decoction; an ounce and a half of the powdered root may be boiled in three pints of water to a quart, adding, toward the end of the boiling, a drachm of cinnamon: of the strained liquor, sweetened with an ounce of any agreeable syrup, two ounces or more may be taken four or five times a day. As a local remedy, it may be used with advantage in the form of gargle and lotion in ulcerations of the tongue and mouth, against fpongy gums, and as an application to ferial ill-conditioned fores; but it is seldom used. Lewis Woodville.

Tormenting, in Agriculture, a term signifying in tillage cultivation an imperfect fort of horse-hoeing or ploughing, or what is sometimes, in some districts, termed sub-hoeing or sub-ploughing. It is occasionally too used as a term of reproach for bad tillage of any kind.

Tormentor, an implement of the tillage kind, used for breaking down and reducing the parts of fuff foils. It is a powerful tool of this sort which is much employed in Devonshire, Cornwall, and some other counties; in the first of which for the purpose of cros-cutting the barks of whole ground, left after the velling and skirting operations for beat-burning, or paring and burning the surface-turf. It is indeed useful in working lands in almost all cafes of bringing them into cultivation, and into a fine flat of mould. See Skirting, Tillage, and Velling.

This sort of implement is constructed in different modes and forms, as in a kind of long triangular shape, the beam part being lengthened out before, in which is fastened, by a fort of shank, a small wheel, which is capable of being raised or let down at pleasure, so as to regulate the depth of working of the tool. At or near the extremity of the frame behind are fixed two large wheels, so as to allow the triangular pointed shares or hoes to work in the ground. The whole is strongly framed together in three pieces; the middle or beam, and the two outside pieces. The number of shares or hoes is usually about nine. The fame tool is sometimes contrived with two wheels in the front, and with a crane neck, being the fame in all other respects. The spill of iron which paffes through the beam in the front, and supports the fore-wheel, has a number of iron rings on it, by which the depth of fliring is regulated. The length of the beam is fix feet nine inches. The breadth or width of the back-piece, where the large wheels are placed, is three feet seven inches. The large wheels are three feet in diameter. The small fore-wheel is ten inches in diameter. The fide-pieces of wood of which the frame is made, are four inches square, and the beam thereabouts. The shares or hoes, which are fixed upon shanks, with smaller parts to pafs through the frame parts and be fastened above, are fifteen inches in length.

The conduction of the tool is consequently very fimple, and easily accomplished by any common workman, fo that the farmer need never be at a loss to fo powerfique and effec- tive an implement in the cultivation of tillage land.

Tormes, in Geography, a river of Spain, which rises in Old Castile, and crossing the province of Leén, paffes by Alva de Tormes, Salamanca, &c. and enters the Duero a few leagues below Miranda de Duero.

Tormina, in Medicine, a term sometimes used to express pains in the general; but more particularly a species of pain, called tormentina ventris, or adev; in English, the gripes; which see. See also Dysentery.

Young children are very often troubled with gripes; it is upon this account that nurses, in order to prevent or re- medy them, usually mix with their spoon-meats a little branly, or some carminative feeds, as caraway-seeds, &c.

Some children breed their teeth with violent gripes, which are apt to bring on convulsions of the bowels. In adults, the dry gripes are usually cured by the exhibition of warm cathartics, such as tincture of hiera pica, eelix furatus, tincture of rhubarb, &c. with the allantion of opiates.

Tormis, Tormes, in Ancient Geography, a river of Hispania, in Lusitania, which united with the Duria. See Tormes.

Torna, in Geography, a town of Hungary, and capital of a county; 14 miles S.W. of Cacafhau.—Also, a town of Saxony; 3 miles S. of Pira.

Tornado, or Tornado, a sudden and violent gulf of wind rising suddenly from the shore, and afterwards veering round all points of the compass like a hurricane; very frequent on the coast of Guinea. These winds frequently shift suddenly from one quarter of the horizon to another, and then come again to the former point. Before a tornado comes, it calms the conflant califerly winds; and when they are past, the califerly wind gathers force again, and the weather clears up fair. See Hurricane and Whirlwind.
TORNADOTUS, or Physicus, in Ancient Geography, the name of the Geus, not Odernah, a river of Asia, on the coast of West Greenland. N. lat. 61° 30'. W. long. 47° 30'.

TORNARECCIO, in Geography, a town of Naples, in Abruzzo: 14 miles N.N.E. of Civita Borello.

TORNARSUK, an island near the west coast of West Greenland. N. lat. 61° 50'. W. long. 47° 30'.

TORNAY, a town of Sweden, in the government of Uclea; 15 miles S.S.E. of Ulea.

TORNEA, a river of Sweden, which rises from a lake in Lapland, and runs into the Gulf of Bothnia, at Tornea. Situated on a small island, formed of a river of the name at its mouth, near the Gulf of Bothnia, and said to be the oldest town in the country, and the farthest towards the north. It has three streets, running in parallel lines from north to south, which are intersected at right angles by fourteen cross-roads or lanes. Tornea, though built on an uniform plan, consists mostly of detached cottages, and contains only 600 inhabitants. The streets are very broad, and not being paved, are overgrown with grass, on which the cows regularly pasture. The inhabitants, being a mixture of Finns and Swedes, have the character of being idle, and addicted to drunkenness; yet the adjacent country, chiefly by the manufacture of the Finnish felters, is rapidly improving; and the population of the province of Lapland appears to have advanced much farther than that of any other part of Europe. In the year 1750, this, according to Baron Hermelin, was 27,000; in 1775, it had increased to 31,000; but in 1801, it amounted to 52,000. The church is built with timber, and stands at a little distance from the other buildings, but within the palisadoes which inclose the town, and is a pretty large piece of arable land. Divine service is performed here in the Swedish language, which is used by the burghers. There is another church, built with stone, on an island called Borken, which lies near the town, in which the service is performed in the Finnian language, for the benefit of the burghers' servants, and the inhabitants of the adjacent country. A very considerable trade is carried on here, not only by the Swedes and Laplanders, but by the Russians and Norwegians, who also resort to the trading and bartering places of Tornea, in order to traffic. In the year 1693, this town was honoured with the presence of King Charles XI. who, being accompanied by several persons of distinction and learning, took a view of the town, at midnight, if it may be called so, from the church tower, at Tornea. In this town, and the adjacent country from hence to Kites, observations were made in 1736 by M. Maupertuis, and some other members of the Academy of Sciences at Paris, in order to determine the measure of a degree of, and consequently the figure of the earth, and its ratification and extension by Ivanborgh in 1759. N. lat. 65° 48'. E. long. 24° 2'.

TORNEA OFVER, a town of Sweden, in West Bothnia; 3 miles N. of Tornea.

TORNESE, a cape on the coast of the Morea; 8 miles S.S.E. of Chiarenza.

TORNESOL. See Turnesol.

TORNESS, a cape on the south coast of the island of Stroma. N. lat. 58° 56'. W. long. 2° 29'.

TORNIALLI, AGOSTINO, IN Biography, a learned ecclesiastic, was born at Novara in 1543, and having entered into the society of Barnabites, he became general of the society. He undertook to write an ecclesiastical history from the beginning of the world to the time of Christ, in the form of annals, and executed the work with very laudable sagacity and correctness, furnishing the reader by his chronological and geographical observations, with a valuable commentary on the books of the Old Testament. It was first printed at Milan in 1610, and afterwards frequently reprinted. Father Negri published an enlarged edition, with valuable notes, in 1775, at Lucca, in four volumes. He declined the offer of the bishopric of Mantua, and chose to remain in the Barnabite college at Milan, where he died in 1622. Dupin.

TORNI, in Geography, a town of Germany, in the principality of Anhalt Zerbst; 3 miles W. of Zerbst.

TORNOVA, a town of Italy; 18 miles S. of Venice.

TORNO, an island in the Baltic, near the coast of Sweden. N. lat. 52° 40'. E. long. 17° 42'.—Alfo, a town of Naples, in the county of Molfi; 15 miles S.E. of Molfi. Alfo, a town of Spain, in the province of Leon, situated on the summit of a hill above the Duero, over which there is a bridge of twenty-two arches. It is the site of a bishopric, and one of the most ancient in the kingdom. Here are the remains of an ancient Moorish castle, forming a square of 143 feet, with a round tower at each angle. In the year 1476, a battle was fought here, by which Ferdinand, prince of Aragon, obtained the kingdom of Castile from Alphonso, king of Portugal: 17 miles E. of Zamora. N. lat. 41° 45'. W. long. 5° 37'.—Alfo, a town of New Mexico, in the province of Cinaloa; 50 miles N. of Cinaloa.

Toro, II, a small island in the Mediterranean, near the south coast of Sardinia. N. lat. 39°. E. long. 8° 34'.

Toro, in Ancient Geography, a town in the interior of European Sarmatia, near the river Careinates. Ptol.

TOROELA, in Geography, a town of Spain, in Aragon; 18 miles N.W. of Jaca.

TORM, a river of Russian, which runs into the Oby; 24 miles E. of Surget.

TORON, a town of European Turkey, in Macedonia, situated on the bank of the river of Zonanto and the Gulf of Caffandria; 60 miles S.E. of Saloniki. N. lat. 40°. E. long. 23° 54'.

TORONAEUS or Tornaiacus Sinar, in Ancient Geography, a small town of the Egean sea, on the coast of Macedonia, and separated from the Singitic and Thessalian gulfs by two large peninsulas. Tacitus. Pliny calls this gulf Teytbergium.

TORNONE, a town of Macedonia, upon the Toronai gulf, to which this gulf owes its name. Ptolemy places it in the Paraxis, and Thucydides fixes it in Chalcidia. About three miles from this town was a temple of Castor and Pollux.—Alfo, a town of Epirus.

TORTONTO, in Geography, a settlement of Canada, on the N.W. bank of Lake Ontario, now called York. See York.

TOROPALCA, a town of Peru; 60 miles S. of Potosi.

TOROPETZ, a town of Ruffia, in the government of Pikoiv; 156 miles S.E. of Pikoiv. N. lat. 56° 25'. E. long. 32° 24'.

TORPRESSA, a town on the island of Mull. N. lat. 56° 35'. W. long. 6° 5'.

TOROSO, a town of Transylvania, in the environs of which are mines of iron and silver; 19 miles N. of Weifenburg.

TOROSUS, in Botany, is sometimes used to express an inequality of surface, like the brawny swellings of a muscular limb; in the carapace of Pogonurus hybridus.

TORP, in Geography, a town of Sweden, in West Gothland;
Torpedo.

Land; 11 miles N. of Uddevalla.—Also, a town of Sweden, in Warmeland; 11 miles N. of Carlstadt.

Torpedo, Cramp-Fish, or Electric Ray, the rajaja tachus of Linnaeus, in Ichthyology, a sea-fish, famed, both among the ancient and modern naturalists, for a remarkable numbness with which it strikes the arm of such as touch it. See Rajaja Tachus.

This species is found in the Mediterranean, on the Atlantic coast of France, in the English seas, particularly at Torbay, near Waterford, on the coast of Ireland, and in other places. See Anfon's Voyage, p. 266.

It is generally taken with the trawl, but an imitation occurs of its taking a bait, which vindicates a fine account which Oppian has left us of this fish. It commonly lies in water about the depth of forty fathoms, in company with the congenerous rays; but its more frequent and favourite situation is the sand, in which it will bury itself by flapping its extremities, and throwing the sand in a light shower over its back. In this situation the torpedo gives its most forcible shock, which throws down the astonished passenger who inadvertently treads upon him. The food of the torpedo is fish, and they probably flupify their prey by the shock they give them; and yet the sea-urchin and common sea-crab will venture to annoy them.

This fish is so far amphibious as to live in air twenty-four hours, and but little longer in fresh water. The best method of preserving them is in well-boats kept in salt-water, and not put into much motion.

Rondelet speaks unfavourably of the torpedo as food, and tells us, that at Venice the prefect of health forbids it to be sold in the market; but in deeming it wholesome food, we have the sanction of Hippocrates and Galen, and it is sold in the markets of France. The electrical organs, indeed, which make one half of the animal, though wholesome, are an indigad meat; but its muscular part is, at least, as palatable as the flesh of the other rays; among these, the old and overgrown are always in little request.

The torpedo brings forth its young at the autumnal equinox, as affirmed by Arifotole, though questioned by Lorenzini. In one dified at La Rochelle, on the 1oth of September, were found in the matrices several of the parasites quite formed, and nine eggs in no state of forwardness; superfetation seems to be, therefore, a property of this fish; the eggs seemed to be defined for the spring brood, as they produce about the vernal as well as the autumnal equinox. There may be also another production at midsummer, but it principally takes place at the two equinoxes.

Upon touching this fish with the fingers, it frequently, though not always, happens, that the person feels an unusual painful numbness, which suddenly seizes the arm up to the elbow, and sometimes to the very shoulder and head.

The pain is of a very particular species, and is not to be described by any words; yet M.M. Lorenzini, Barelli, Redi, and Reaumur, who all felt it severelly, observe it to bear some resemblance to that painful sensation felt in the arm, upon striking the elbow violently against a hard body: though M. Reaumur affirms us, this gives but a very faint idea of it.

Its chief force is at the instant it begins; it lasts but a few moments, and then vanishes entirely. If a man do not actually touch the torpedo, how near forever he holds his hand, he feels nothing; if he touch it with a flisk, he feels a faint effect; if he touch it through the interposition of any very thin body, the numbness is felt very considerably; if the hand be prefed very strongly against it, the numbness is the less, but still strong enough to oblige a man speedily to let go.

Oppian affirms, that it will benumb the astonished fisherman, even through the whole length of line and rod. See the passage cited and translated by Pennant, Brit. Zool. vol. iii. P. 39.

So great are as the powers of this fish when in vigour, they are impaired as it declines in vigour, and totally ceases when it expires. The shocks in water are apprehended to be near a fourth of the force of those at the surface of the water, and not much more than a fourth of those entirely in air. This strange power, with which the torpedo is endowed, and which we shall presently explain, seems to have a double use; the one, when it is exerted as a means of defence against voracious fish, who are by a touch deprived of all power of feizing their prey; the other is well explained by Pliny, who tells us, that by the same powers it attains its end with respect to those fish which it wishes to ensnare; for, concealing itself in the mud, and benumbing the fish that are carelessly swimming about, it makes a ready prey of them.

M. Reaumur, having no fishes alive to examine what the torpedo would do to them, shot up a drake in water with it, and after some time it was taken out dead. See Electric Organs of Fish.

We shall now proceed to give a brief recital of the different theories that have been adopted in order to account for the extraordinary effects of the torpedo. This fish was early known to the Greeks; it is mentioned, as an esculent fish, by Hippocrates, under the name pigruns, which shews that the ancients had some knowledge of its torporous qualities. Plato also was acquainted with them, as appears by the homorons comparison of Socrates to that animal, which he puts into the mouth of Menon. Arifotole likewise treats of the benumbing or flupifying qualities of this fish, though he seems to have no idea of their being communicated by the intervention of a flisk, rope, or water.

Theophrastus, according to Athenaeus, observed that the torpedo conveyed the benumbing sensation through the fish and sread into the hands of the fishermen that held them. Diphilos, of Laodicea, takes notice that the torpedo was occasioned, not by the whole, but by certain parts of the body of this fish: and Hero of Alexandria mentions it as emitting effluvia through brails and iron, and other solid bodies.

Pliny's account, though partly true, is mingled with the marvellous and fallacious. Plutarch is more full and just; for he represents the torpedo as not only benumbing all that touch it, but flupifying a numbness through the net into the hands of the fishermens, and as even diminishing the feeling of those who poured water upon it, if it happened to be laid on the ground alive. He adds, that whilst the torpedo swims round his prey, he emits certain effluvia like darts, that first affect the water, and then the fishes in it, which are thus disabled from defending themselves or escaping.

Before the days of Galen, the torpedo was placed alive to parts affected, and particularly for the cure of an obilinate head-ache, as appears from Scribonius Largus, who lived under Claudian, and from Dicoroides, who flourished soon after. Galen conceived that the torpedo acted by a frigorous principle, for as cold occasions a numbness in an animated body, so does the shock given by that animal. Paulus of Aegina, one of the Galenic school, recommends the oil of the dead fish for tempering the hot humour of the gout, and for other ailments that required cooling applications.

Such are the unsatisfactory accounts of the philosophers and physicians of antiquity.

The Abulinnians, it is said, use torpedos for the cure of fevers,
fevers, by lying down the patient to a table, and applying the fish successively upon all his members, which puts him to cruel torment, but effectually removes his disease. Bel- lonius assures us, that our own torpedoes applied to the soles of the feet, have proved successful against fevers.

Oppian, like Diphilus, distinguishes the parts where the powers of the fish peculiarly reside; these he calls 

*αὐγοὶ* 

the flanks, from which he imagined the animal had a faculty of darting upon other fishes certain subsistences, called by a name *εἰγαλί*, the meaning of which is obscure. In the sixteenth century, some members of the Academy del Cimento availed themselves of their victory to the sea to make experiments on the torpedo. Redi began, and was afterwards assisted by Borelli, and then by the Dane, and Lorenzini, his scholar, engaged in the same pursuit, and published a curious treatise upon the subject. Redi, having endeavoured to distinguish between the real properties of the torpedo, and those erroneously ascribed to it, proceeded to the anatomy of it; and was the first who with any accuracy described those crooked subsistences lying on each side of the spine, near the head, which he considered as muscles (from thence named *musculi falcati*) that projected, according to him, certain effluvia, occasioning the sensation of numbness more or less, as the animal was excited to put these organs into action. This hypothesis of the transmision of effluvia was immediately embraced by Lorenzini, and afterwards by Claude Perrault. Borelli, not admitting the emission of benumbing particles, referred the sensation produced by this fish to a certain brisk undulation of the parts touched, which the animal could excite at will.

In 1714, M. Reaumur, being on the coast of Poitou, took an opportunity of making some experiments on the torpedo, which, with the refult, he communicated to the Royal Academy of Sciences at Paris. His hypothesis, which was generally received by the ingenious naturalists over all Europe, is not very different from that of Borelli; for instead of the undefined vibrating parts of the latter, M. Reaumur substituted muscles (the *musculi falcati* of Redi and Lorenzini) which, by the vivacity of their action, impelled upon the hand, that touched these parts, a sensation of numbness, owing to the elevation of the procretion of the nervous fluid, or a repulsion of the same. But he denied that this impression of numbness could be communicated through water, a net, or any other soft and yielding substance; nay, through a stick, except a very short one, whereas, it is certain, that the shocks of the torpedo are not less conducted through fuch media than those from a charged electrical phial.

We have been lately furnished, by the experiments and observations of John Walsh, esq. with a theory, much more plausible and just than any above recited, which considers the electric fluid as the efficient cause of the amazing qualities of the torpedo. We shall be led to a brief account of the facts on which this theory is founded by the following preliminary remarks.

Soon after the discovery of the Leyden phial, the celebrated professor Allemann applied to M. s'Graveande, governor of Efqueibo, for an account of a fish in Surinam, resembling a conger-eel, and possessing properties similar to those of the torpedo; this account was received in 1754, and published in the second volume of the Transactions of the Society at Haerlem. From this account it appears, that the shocks of the fish, which were so violent, when the fish was strong and lively, as to throw a person who touched it to the ground, were like those of the electrical fire, but unaccompanied with sparks of fire; and that the fish was a species of the gymnotus of Artedi. In the sixth volume of the same work, we have a more ample relation of the exertions of this animal by M. Vander Lott, dated from Rio Effequibo, in 1761. M. Adamfon, about the same time with the discovery of M. s'Graveande in America, met with the same or a similar fish in the river of Senegal in Africa. The earliest account we have of this kind of eel is by M. Richer, recorded by M. du Hamel, in his History of the Royal Academy of Sciences for 1777. In the island of Cayenne, says M. du Hamel, there is a fish, not unlike a conger-eel, which, touched with the finger, or even with the end of a ftick, affects the arm with a numbness, and the head with giddiness, and the eyes with a dimness of sight, which M. Richer had himself felt upon making the experiment. See Gymnotus.

We are indebted to Mr. Walsh for not only the first, but for a numerous series of experiments on the torpedo, in order to ascertain its electrical nature; together with some correct and elegant drawings of the entire animal, and of some of its principal organs that appeared upon dissection. These experiments were made in the year 1772, partly at the house of Riché, and partly at Rochelle, in the presence of the members of the Royal Academy of Sciences at that place. They were conducted in a scientific manner, and properly diversified, and the result of them satisfactorily established the torpedo in the rank of an electrician, furnished with a power over the electric matter; by means of which he can, without any foreign machinery, and almost in an instantaneous manner, collect, condense, and at his will disperse it to neighbouring bodies, through any of those substances that are known to be conductors of the electric fluid. The phenomena occasioned by the torpedo and Leyden phial, in the human frame, are precisely similar: not only the shock, but the numbing sensation sometimes given by the animal, may be exactly imitated with the phial, by means of Lane's electrometer; the regulating rod of which, to produce the latter effect, must be brought almost into contact with the prime conductor which joins the phial.

The first experiment of Mr. Walsh discovered the electric quality of the torpedo, by his conveying its effects through the same conductors with his electricity, such as metals, water, and animal fluids, and by intercepting it by the same non-conductors, as glass and sealing-wax. Besides, one of the most brilliant of his discoveries was, that this animal not only could accumulate in one part a large quantity of electric matter, but was furnished with a certain organization, disposed in the manner of the Leyden phial; thus, while one surface of the electrical part (e.g. that on the back) was charged with this matter, or in a positive state; the other surface (that on the belly) was deprived of it, or in a negative state; so that the equilibrium could be restored, by making a communication between the two surfaces by water, the fluids of the human body or metals, in the same manner as by forming a circuit between the inside and outside surfaces of the Leyden phial. A living torpedo was laid on a table, upon a wet napkin; round another table food five persons inflated; and two brafs wires, each thirteen feet long, were suspended from the ceiling by silk en trinirs. One of the wires raised by one end upon the wet napkin, the other end was immerced in a basin full of water, placed on a second table, on which stood four other basins full of water. The first person put a finger of one hand into the water in which the wire was immerced, and a finger of the other hand into the second; and so on successively, till all the five persons communicated with each other by the water in the basins. In
the last bafon one end of the second wire was dipped, and with the other end Mr. Walb touched the back of the torpedo, when the five perons felt a shock, differing in nothing from that of the Leyden experiment, except in being weaker. Mr. Walb, who was not in the circuit, was not affected. This experiment was successfully repeated several times, even with eight perons. From this experiment it is evident, that the action of the torpedo is communicated through metals and water, or, in general, through the fame media that transmit the electrical connexion. It follows, likewise, that the upper and under parts of the animal, like the upper and under surfaces of an electrified plate of glafs, are in different states; for a peron who touches only the upper or the lower part of the electric organs, will not receive the shock of the torpedo. This action evidently depends on the will of the animal, who, however, scarcely exhibits any other fenible motion or effort at the time of exerting it than a depreffion or winking of his eyes. The fame motion is observed likewise to accompany its fruitlef attempts to tranfmit a shock through non-conductors. The flock of electrical matter which the torpedo poftefles appears to be very confiderable: a torpedo, when infufcated, has given to Mr. Walb, infufcated likewise, no lefs than fifty shocks in the space of a minute and a half.

Such are the operations performed by the torpedo in air. When a large fhock, very liberal of its shocks, was held in water, with one hand on his breast and another on his back, he gave the operator shocks of the fame kind as before, but about one-fourth of the strength of those given in air. At the very inftant of raifing him out of the water, he conftantly gave a very violent shock, and another nearly as violent, when his lower surface first touched the water on dipping him into it. On briskly and alternately plunging him a foot deeper into water, and raifing him an equal height into air, besides one or two shocks which he gave during the short time he was wholly in the water, and thofe which he gave at the surface, he constantly gave at leat two when he was wholly in the air: fo that Mr. Walb efimates that he gave above one hundred shocks during the minute in which the experiment was performed. The conclusions drawn from Mr. Walb's experiments were farther confirmed by experiments made on the torpedo at Leghorn, by Dr. Ingenhouf, in 1773.

Mr. Walb obferves, that the electricity of the torpedo refides in thofe parts that are called his electric organs: the parts bordering on these acting, more or lefs, as conductors, either through their fufblance, or by their fuperficies: and of thofe, the parts which conduct the best are the two great lateral fins bounding the organs outwardly, and the space lying between the two organs inwardly. All below the double tranferve cartilages feafearily conduct at all, unlefs when the fhock is juft taken out of water and is ftil wet, the mucus, with which he is lubricated, shielding itfelf, as it dries, to be of an infufcating nature; and the organs themselves, when uncharged, appear to be not inter printed, but rather exteriorly, as Mr. Walb fuftothes, con-ductors of a fhock. We are indebted to Mr. John Hunter for an accurate anatomical defcription of the torpedo, accompanied with two excellent drawings, who has thus supplied us with a valuable addition to the anatomical examination of this animal by Redi, Steno, and Lorenzini. For his account, we refer to Electric Organs of Fish.

Although Mr. Walb's experiments leave little room to doubt, that the shock given by the torpedo is produced by the fame agent that gives the fhock in an electrical explosion, yet there are fonie circumftances which it is difficult to reconcile to the supputation that it is produced by the electric fluid. One of these difficulties is, that the fhock is able to give a fhock when he is in the water, and consequently surrounded by a medium, through which the electric fluid is known to be tranfmitted with the greatest facility. It has likewise been difficult to conceive why the shock of the torpedo, supposing it to be produced by the electric fluid, should not, like that of an electrified bar, be accompanied with the appearance of light or fharks, or should not exhibit fome figns of attraction or repulfion. But from Mr. Walb's experiments it appears, that no light could poffibly accompany the shock of the torpedo, becaufe this shock could never be made to pass through the left fenible space of air, or the smalleft interruption made by the circuit; not even through the imperceptible interval between the links of a slender brads chain, apparently in contact with each other, nor over an admirable imperceptible interval or slit formed by cutting through a fip of tin-foil paffed onfealing-wax, which constituted part of the circuit; nor are the moft delicate pith-balls, or other light bodies, in what manner forever applied, in the leat degree affected at the time of the fhock. Mr. Walb obferves, that, with refpect to the pith-balls, it is not furprising that no motion could be discovered in them, as all his experiments fully fhowed that there was no gradual accumulation of the electric fluid, as in the cafe of charged glafs; but that it was collected and condenfed in the very inftant of the explosion, by a double effe that he explains and the other differences between the phe-omena of the Leyden pial, and of the torpedo, or the abfence of light and found, in the experiments made with the latter, by the following confiderations.

In a large fhock, the number of columns above mentioned, contained in one electric organ, was found to be no lefs than eleven hundred and eighty-two. This immense collection of cylinders Mr. Walb considers as fomewhat analogous to a large number of jars in an electric battery, and as containing a very large area in confequence of the great number and extensive surface of the columns. Now it is known, from experiments made with artificial electricity, that though the electric matter violently condenfed, or expelled from a very fmall pial, his gap charged, is capable of forcing a paflage through an inch of air, and that it will afford, in a very conpicious manner, the phe-nomena of light, found, attraction, and repulfion; yet if the quantity thus condenfed be expanded and rarefied, by communicating it to, or dividing it amongst a large number of jars, whose coated surfaces confitute a space, e.g. four hundred times larger than that of the pial: this fame quantity of electric matter, thus diffufed, will now yield only the fainter, or, if they may be fo called, the negative phenomena of the torpedo. It will not now be capable of pafting over the one hundredth part of that inch of air, which, in its condenfed state, it could pafs through with ease; it will not even be able to jump over the little gap made in its track by the interruption of the tin-foil; no fparf, found, or attraction of light bodies, will now be perceived: and yet this portion of electric matter, in this diffufed state, and with its diffufability thus diminished, will, like that of the torpedo, to effed its equilibrium, run through a conpiderable circuit of different conductors, perfectly conpuous, and will communicate a fenible fhock.

The Hon. Mr. Cavendih has endeavoured to remove the difficulties above stated, firft, by fome ingenious reafonings a priori, and afterwards by others drawn from the phenomena prefented by an artificial torpedo which he con-structed, and by means of which he has imitated the effects produced by the living animal. With refpect to the difficu-

Vol. XXXVI.
The cultv of conceiving how the torpedo can give a shock in water, he observes that those electricians are mistaken, who suppose that the electric fluid will only pass along the shortest and bell conductors. When different circuits are made (e.g. by means of the body, and the human body) between the positive and negative sides of a charged jar, some parts of the electric fluid will pass along each of them; though the greater quantity will pass through those in which it meets with the least resistance. Thus, a person may receive a part of the shock given by the torpedo in water, by holding one hand on the lower surface of an electric organ, and the other on the upper, or by applying his hands to other parts of the fish, or by dipping them into the water, so that one hand is nearer to the upper surface of the electric organs than the other; yet the greater part of the shock or charge may pass at the same time in all directions over the surface of the fish, or through the substance of its body, or through the water contiguous to it. With respect to the other difficulties, he solves them by reasonings similar to those urged by Mr. Walh, and by concursing experiments. Mr. Cavendish has confirmed these reasonings by means of his artificial torpedo, which is a piece of wood A B C D E (Plate XV. Electricity, &g. 4.) of which the part A B C D E is cut into the shape of the torpedo, and 1 2 3 inches long from A to D, and 1 5 5 inches broad from B to E; the part C D E is forty inches long, and serves for a handle. M N N M is a glafs tube let into a groove cut in the wood: W W is a piece of wire passing through the glafs tube, and folded at W to a thin piece of pewter, R R, lying flat on the wood, and intended to represent the upper surface of the electric organs: on the other side of the wood there is placed such another glafs tube, with a wire passing through it, and folded to another piece of pewter like R R, intended to represent the lower surface of those organs. The whole part A B C D E is covered with a piece of sheep-skin leather. In making experiments with this apparatus, after thoroughly soaking it in water of the saltiness of the sea, made by dissolving one part of common salt in thirty of water, the end of one of the wires is fastened to the negative side of a large battery, and when it is sufficiently charged, the positive side is touched with the end of the other wire; by which means the battery will be discharged through the torpedo. In experiments with this torpedo under water, Mr. Cavendish uses a trough, A B C D E (fig. 5.), the length B C of which is nineteen inches, the depth A B fourteen inches, and the breadth thirteen inches. The battery which he used was composed of forty-five jars, of very thin glass, diffined in seven rows, and so contriv’d, that he could use any number of rows at pleasure. Mr. Cavendish was enabled, by means of this apparatus, when immersed in water, to give shocks much resembling those given by the living animal. He felt familiar concussions likewise when he dipp’d his hands in water, at the distance of two or three inches from it: and as it is affirmed, that a person accidentally treading on the living fish, when buried in the sand, is sometimes shock’d by it, he imitated this experiment with his artificial torpedo, and received shocks from it. The events indeed, in the greater part of his experiments, so numerous to be recited in this place, with this artificial fish, relative to the shock, seem to agree sufficiently with those made by Mr. walh with the living animal. The experiments which Mr. Cavendish made with this machine, relative to the circumstance of the shock of the real torpedo not being able to pass through any fenible space of air, appear likewise to correspond with Mr. Walh’s trials. A piece of sealing-wax covered with tin-foil freely conducted a shock from the artificial torpedo; but on making as small a separation as possible through the metal with a penknife, the shock would not pass. See on the subject of this article for Mr. Walh’s paper, Phil. Trans. vol. lxxii. part ii. p. 461. I. vol. liv. part ii. p. 464. For Mr. Hunter’s paper, Id. vol. lxxii. part ii. p. 481. For Dr. Ingenhouz’s, Id. vol. lxv. part i. p. 1. For Mr. Cavendish’s, Id. vol. lxxvi. part i. p. 169. See also Sir John Pringle’s Six Discourses, &c. by Dr. Kip- pis, p. 45. &c.

TORPETO, a machine so called, invented by Mr. Fulton of the United States, and designed to blow up the largest ships. It is an apparatus of which the principal piece is a copper-box, inclining a certain quantity of gunpowder, and prepared with an interior spring which sets fire to the powder, at the same time that the whole is inclosed in a covering of cork, or some other light wood, to make the torpedo float under the surface of the water. It is placed under the keel of the vessel to be destroyed, by means of a harpoon directed against the sides of the ship.

TORPEN, in Geography, a town of Transylvania; 4 miles S.S.W. of Biltriz.

TORPERLEY, a town of England, in the county of Chelfer; 10 miles S.E. of Chelfer.

TORPETCHIN, a town of Thibet; 100 miles S. of Haratoubé.

TORPHICEN, a parish in the shire of Linitlgow; Scotland, is situated four miles S. by W. from the shire-town, and extends about nine miles in length, and two and a half in breadth. Its general appearance is hilly, particularly towards the E. end, where the hill called Cair Naple is situado, which is elevated 1498 feet above the level of the sea. The greater part of the parish is inclosed; and where the land is unfit for cultivation, considerabe plantations have been made. Coal is abundant; and here are large quarries of excellent freestone; several seams of ironstone, rich in metal; and a strong chalybate spring.

In the year 1811, the population was returned as 1131, occupying 236 houfes. The hosital or preceptory of Torphichen, long the principal residence of the knights of St. John of Jerusalem, was founded, in 1220, by king David I. The croft and a square tower still remain, and are fine specimens of the elegance and beauty of the architecture. There are two wings, one on the S. and the other on the N. side; and evident marks of other two on the E. and W. This preceptory had the privilege of sanctuary, which is supposed to have extended a mile in every direction; there is a flone in the church-yard as a centre, and four others at the distance of a mile, E., W., N., and S., with St. John’s cros upon them, which stand about two feet above the surface. At the Reformation, the vall eflates of that opulent order were converted into a temporal lordship, in favour of Sir James Sandlands, lord St. John of Jerusalem; in which noble family the title of lord Torpichen still remains. Near Loch-Coat, in this parish, are the ruins of a castle, which still display baronial gloom and grandeur. About a mile to the E. of the village, is an altar of four great unpolished whin-flones, which is said to have been a druidical place of worship; and about a mile to the N.W., is Boudane Hill, upon which are evident marks of a military station.—Beauty of Scotland, vol. iii. Linitlgow. Carlile’s Topographical Dictionary of Scotland.

TORPON, a town of Little Bucharia; 20 miles S.W. of Acau.

TORQUATA, in Zoolwgy, a name given by many authors to the common or water-fish, from the remarkable ring it has about its neck. See Natrix.

TORQUE, in Heraldry, a round roll of cloth twisted
and stuffed: such is the bandage frequently seen in armories about the heads of Moors, favages, &c.

It is always of the two principal colours of the coat. The torque is the least honourable of all the enrichments worn on the helmet by way of creft.

TORQUEMADA, John de, in Biography, a cardinal, was born at the place in Spain whence he took his name in 1538, and entered at the age of 15 into the Dominican order at Valladolid. He distinguished himself at home, in the university of Paris, and in various other places, and at length was promoted to the cardinalate, under the title of St. Sixtus, in 1439. After having been successively translated from one bishopric to another, he died in 1468, at the age of 80 years. He published a great number of works on theology, and in defence of the papal authority. Among other preferments which he enjoyed, he was confessor to Isabella of Castile from her infancy; and such was the temperate zeal that actuated him, he extorted from her a promise, that if she ever came to a throne, she would make the chastisement and destruction of heretics her principal object.

Another person of the same name was provincial in New Spain, and published a Spanish work under the title of “Monarchia Indiana,” or, A History of the Wars, Discoveries, Conquests, &c. in the West Indies, in 22 books, 3 vols. fol. 1615. Dupin. Morei.

TORQUEMADA, in Geography, a town of Spain, in the province of Leon, on the Arlanza; 12 miles E. of Palencia.

TORQUILLA, in Ornithology, the name of a species of wood-pecker, more commonly known by the name of jynx, and called in English the vory-neck.

TORQUINO, in Geography, a river of Cuba, which runs into the Spanish Main, N. lat. 20°. W. long. 76° 57'.

TORR, a town of Arabia, in the province of Yemen; 32 miles E. of Lobelia.

Torrallba, a town of Spain, in New Castile; 7 miles N.E. of Ciudad Real.

Torralva, a town of Spain, in Navarre, 15 miles from Estella.

Torrano, a town of Spain, in Navarre; 15 miles W. of Pamplona.

Torre, Filippo del, in Biography, an eminent antiquary, was born at Ciudad de Friuli in 1657, and having acquired an extensive knowledge of jurisprudence, mathematics, and anatomy at the university of Padua, he sought farther improvement at Rome in 1687, and became an academician of the college of the Propaganda. He was afterwards employed as auditor to cardinal Imperiali, in his legation to Ferrara, and accompanying him on his return to Rome, he devoted his attention to the great work on the antiquities of Antium, which he published in 1700. In 1702 he was nominated by pope Clement XI. to the bishopric of Adria, and there he presided with great reputation until his death, in 1717. Among his writings we may mention as the principal, his “Monumenta Veteris Antii,” 4to.; besides which, he published several other dissertations on antiquities, natural history, &c. and left many more in MS. Gen. Biog.

Torre, John Maria de la, a celebrated Italian philosopher, was born at Rome in 1710, studied at the Clementine college, and was elected professor of mathematics and philosophy in the college of Ciudad, in the Friuli; and afterwards removed to Naples, where he taught the same sciences in the archiepiscopal seminary. In 1754 he was appointed librarian to the king of Naples, superintendent of the royal printing-house, and conservator of the museum. In the construction of microscopes he is said to have made considerable improvements. He was a member of the principal academies in Italy, and a correspondent of those of Paris and Berlin, and of the Royal Society of London. He died in March 1782. His works, besides a Treatise on Arithmetic, are, “The Science of Nature,” Naples, 1749, 2 vols. 4to.; Venice, 1750, 4to.; “Elementa Physica,” Naples, 1767, 8vo.; “History of the Phenomena of Vefuvius,” ibid. 1755, 4to.; “Microscopic Observations,” ibid. 1776.

Torre, in Geography, a town of Spain, in Catalonia; 6 miles S. of Lerida.

Torre del Acre, or Agri, a town of Naples, in Bafilicata, on the coast of the gulf of Tarento; 25 miles S.S.E. of Matera.

Torre del Anuntiata, a town of Naples, in Lavora; 9 miles S.E. of Capua.

Torre Calenza, a town of the island of Corfica; 15 miles N.E. of Ajazzos.

Torre de Candarca, a town of Naples, in Capitanata; 11 miles W.S.W. of Manfredonia.

Torre Capigliola, a town of the island of Corfica; 10 miles N. of Ajazzos.

Torre del Capo di Roffio, a town of Naples, in Calabria; 18 miles N.E. of Cainso.

Torre Carabula, a town of the island of Corfica; 10 miles W.S.W. of Vico.

Torre di Cedagna, a town of Spain, in Catalonia; 9 miles N. of Puycerda.

Torre di Francolifi, a town of Naples, in Lavora; 8 miles N.W. of Capua.

Torre di Galeria, a town of the island of Corfica; 15 miles S. of Calvi.

Torre la Contarella, a town of Naples, in Capitanata; 2 miles S. of Vielet.

Torre Girolata, a town of the island of Corfica; 20 miles S. of Calvi.

Torre del Greco, a town of Naples, in Lavora. This town was destroyed by an eruption of Vefuvius; yet the inhabitants, after the eruption, returned and rebuilt the town on the same spot; 5 miles S.E. of Capua.

Torre Maggiore, a town of Naples, in Capitanata; 5 miles S.W. of St. Serviero.

Torre di Mare, a town of Naples, in Bafilicata; 20 miles S.E. of Matera.

Torre di Mesza, a town of Italy, in the department of the Mincio; 16 miles E.S.E. of Mantua.

Torre Molina, a town of Spain, in Grenada; 12 miles from Antequera.

Torre de Moncorvo, a town of Portugal, in the province of Tras os Montes, surrounded with a wall, and defended by a bastion and a castle. The number of inhabitants is about 1300; 42 miles S.S.W. of Braganca. N. lat. 41°. W. long. 6° 44'.

Torre di Neapoli, a town of the island of Sardinia; 5 miles N. of Orifatana.

Torre di Negarco, a town of Italy, in the department of the Mincio; 14 miles E. of Mantua.

Torre d'Orho, a town of Italy, in the department of the Mincio, near its union with the Po; 14 miles S.S.W. of Mantua.

Torre del Penza, a town of Naples, in Abruzzo; a promontory, near the Adriatic; 15 miles E. of Lanciano.

Torre Reffo, a town of Naples, in the province of Otranto; 10 miles N. of Tarento.
Torre de St. Basilia, a town of Naples, in Baflicitca, on the coast of the gulf of Tarento; 8 miles S.E. of Turin.
Torre St. Saffiano, a town of Naples, in the province of Otranto; 7 miles S.E. of Orria.
Torre de las Salinas, a town of Spain, in Valencia, near the coast of the Mediterranean, which carries on a great trade in salt, with which it is furnished by a small lake, formed by saline springs; and though the water be apparently weakened by rain, yet is salt made of it by the exhalations of the sun. The usual quantity thus produced, one year with another, is about 900,000 fanegas, each fanega being 150lbs. weight; but when heavy rains are accompanied by excessive heat, it comes little short of 1,500,000.
This is the most considerable salt-work in all Spain; 20 miles S.E. of Orihuela.
Torre de Sanguinanaza, a town of the island of Candia; 9 miles E. of Retiro.
Torre della Saffia, a town of Naples, in Capitanata; 3 miles N.E. of Salpe.
Torre Sicara, a town of the Popedom, in the marquisate of Ancona, on the Tronto, opposite Acoli.
Torre Tavignano, a town of the island of Corsica; 28 miles S.E. of Corte.
Torre di Vacarella, a town of Naples, in Capitanata; 10 miles N.E. of Troja.
Torre di Varano, a town of Naples, in Capitanata; 20 miles W. of Viele.
Torre la Vega, a town of Spain, in the province of Bifeay; 11 miles S.W. of Santander.
TORRECILLA, a town of Spain, in Old Castile; 11 miles S.E. of Najera.
TORRECILLAS, a town of Spain, in Estremadura; 6 miles E.N.E. of Truxillo.
TORRECUSO, a town of Naples; 5 miles W. of Benevento.
TORREDAL, a river of Norway, which runs into the sea near Christianfand.
TORREFACTION, formed of torrefacere, to roast, in Metallurgy. See Roasting.
Torrefaction, in Pharmacy, a kind of roasting, or asfation, in which a drug is laid to dry on a metallic plate placed over or before coals, till it become friable to the fingers.
Torrefaction is particularly used, when, after reducing some drug, as rhubarb, or myrobalan, into powder, it is laid on an iron or silver plate, and that placed over a moderate fire till the powder begins to assume a darkish hue; which is a mark, that those remedies have lost their purgative virtue, and have acquired a more astringent one.
Formerly they used to torrefy opium, to get out some malignant parts fancied to be in it, before they dared use it in medicine; but the effect was, that its volatile spirits and sulphur, in which its greatest virtue consists, were hereby evaporated.
TORRETFIED EARTH, in Agriculture, that which has undergone the action of fire, or been burnt. It has been observed by the writer of a paper on peat in the third volume of the "Transactions of the Highland Society of Scotland," that the uncommon fertility of torrefied earth can scarcely have escaped the notice of any one; but that it is difficult to account for the cause. It is suggested that torrefaction, by destroying the cohesive power of clay, may in that way render a soil containing torrefied earth more permeable to the roots of plants. But brick-dust, or burnt clayey matters, even when burned on the surface of grass-ground, confuses the moffes, or plants of that kind, and produces a deep verdure and lively vegetation of sweet herbage. It is stated by the author of the "Elements of Agricultural Chemistry," that when clay or tenacious earths are burnt, their power of absorbing moisture is lessened, and they are brought nearer to a state analogous to that of sands. That in the manufacture of bricks, this general principle is well illustrated: as, if a piece of dry brick-earth be applied to the tongue, it will adhere to it very strongly, in confluence of its power to absorb water; but that after it has been burnt, there will be scarcely a sensible adhesion. The process of torrefaction or burning may, therefore, render an earth less compact, less tenacious and retentive of moisture; and, when properly applied, may convert a matter that was stiff, damp, and, in consequence, cold, into one that is powdery, dry, and warm; and much more proper as a bed for vegetable life.
Dr. Darwin, in his "Phytologia," has supposed that clay, during torrefaction, may absorb some nutritive principles from the atmosphere that may afterwards be supplied to plants; but the earths are pure metallic oxys, saturated with oxygen; and the tendency of torrefaction, or burning, is to expel any other volatile principles that they may contain in combination. If the oxys of iron in earths be not saturated with oxygen, torrefaction tends to produce its further union with this principle; and hence in burning, the colour of clays changes to red. The oxys of iron which contains its full proportion of oxygen, has less attraction for acids than the other oxys, and is consequently less likely to be dissolved by any fluid acids in the earthy parts of land; and it appears in this state to act in the same manner as the earths. And though it has been suggested, that the oxys of iron, when combined with carbonic acid, is poisonous to plants; and that one use of torrefaction is to expel the carbonic acid from it; yet the carbonate of iron is not soluble in water, and is a very inert substance; besides, a luxuriant crop of cereals has been raised by the writer in a soil composed of one-fifth carbonate of iron, and four-fifths carbonate of lime. Carbonate of iron, too, abounds in some of the most fertile soils of this country, particularly the red hop-soil. And there is no theoretical ground, it is said, for supposing that carbonic acid, which is an essential food of plants, would, in any of its combinations, be poisonous to them; besides, it is known that lime and magnesia are both noxious to vegetation, unless combined with this principle.
The first of the above writers has likewise found, that cohesive earth which has suffered torrefaction, such, for instance, as brick-dust, is one of the most powerful agents in promoting the solubility of peat, and, consequently, not only of affilting in the cultivation of land of that sort, but in expediting the preparation of that earth as a manure. And as it has this very powerful effect in exciting the fertility of peat, kilns might, perhaps, be constructed, in which cohefive earth might be burnt either with the refuse of coal or peat-fuel. After the peat had been somewhat mellowed by the first culture as propounded, into a foil, a quantity of this brick-dust material might be spread out on the surface, after being turned up, to be harrowed in with the head. But although the torrefaction or burning of clay for this purpose should not be attainable at a moderate expense, if a sufficient quantity of earth be once mixed with the peat, it will not be difficult to reduce that earth to the state of brick-dust. As when the viviparity of peat is destroyed, and its parts separated by the intervention of earthy particles, it is very susceptible of combustion; it might be lightly turned over in the beginning of summer, and fire be communicated to it as soon as
of Mantua.—Alfo, a town of Italy, in the department of the Pararo; 8 miles W.S.W. of Modena.

TORRICEILLI, EVANGELISTA, in Biography, a very distinguished mathematician and philosopher, was born at Faenza in 1608, and at the age of eighteen he went to Rome to complete his education, and particularly to extend his acquaintance with mathematics, under the instruction of Benedetto Castelli, who was professor of mathematics in that city. After the perusal of Galileo's "Treatise on Motion," he composed a work of a similar kind, which being shown to Galileo by Castelli, excited his admiration, and induced him to invite the young author to his house. But as Galileo died three months after his arrival, he proposed to return to Rome; he was diverted, however, from his purpose, by being appointed mathematician and philosopher to the grand duke Ferdinand II., who also advanced him to the mathematical chair at Florence. In this honourable station he assiduously prosecuted his speculations and experiments, till death prematurely deprived the world of the benefit which could not fail to result from them, in the year 1647, at the age of 39 years. His "Treatise on Motion," already mentioned, was published in a "Collection of his Mathematical Works" in 1644. Of his dispute with Roberval concerning the Cycloid, we have already given a short account under that article. But Torricelli's fame is sufficiently established by his discovery of the true principle upon which the barometer is constructed. (See Torricellian.) Torricelli was no less celebrated for his mathematical knowledge, evinced by his improvement of the science of indivisibles discovered by Cavalieri, and for his acquaintance with the principles of optics, by which he was led to improve the construction of telescopes and microscopes. His discoveries, by which his name is immortalized among the promoters of useful sciences, are recorded in his "Lettere Accademiche," published at Florence in 1715, 4to., by Buonaventuri, with the life of Torricelli prefixed. The style in which he wrote in his native language was pure and elegant, and his general character was such as to command the respect and esteem of all who knew him.

TORRICEILLIAN, a term very frequent among physical writers, used in the phrase Torricellian tube, or Torricellian experiment, on account of the inventor, Torricelli, a disciple of the great Galileo.

Torricellian Tube, is a glass tube, open at one end, and hermetically sealed at the other, about three feet long, and one-tenth of an inch in diameter. See Barometer.

Torricellian Experiment, is performed by filling the Torricellian tube with mercury, by dropping the open orifice with the finger, inverting the tube, and plunging that orifice into a vessel of flagrant mercury. This done, the finger is removed, and the tube sustained perpendicular to the surface of the mercury in the vessel.

The consequence is, that part of the mercury falls out of the tube into the vessel, and there remains only enough in the tube to fill from twenty-eight to thirty-one inches of its capacity, above the surface of the flagrant mercury in the vessel.

Thofe twenty-eight, &c. inches of mercury are sustained in the tube by the preflure of the atmosphere on the surface of the flagrant mercury; and according to this atmosphere is more or less heavy, or as the winds, blowing upwards or downwards, heave up or deprefs the column, and to increase or diminish its weight and figure, more or less mercury is sustained from twenty-eight inches to thirty-one.

There is a cafe, however, firft taken notice of by Haygensi (Journal de Scavans, 1674, p. 111.) in which, if a glass tube of a small bore seventy or eighty inches in length, be well cleaned, and filled with mercury well purified of
of air, &c. in the manner described under Barometer, and
then carefully inverted into a vessel of stagnant mercury,
the mercury, instead of coming down to the height jut
mentioned, at which the preffure of the atmosphere is able
to sustain it, will continue to fill the tube, and stand at
the height of seventy-five inches: but by stricking the tube,
or gently shaking it, the mercury will descend and fettle
at its proper height, as in the common barometer. This
phenomenon is explained on the principles of the at-
traction of cohesion, which acts most powerfully in contact:
for when the tube is clean, and the mercury well purged of
air, many parts of the mercury, which, by the interpoftion
of small air-bubbles, would be kept from touching the tube,
are brought into contact with it, and those particles that are
in the middle of the column adhere to those that are next to
the fides of the tube, and thus form a compact column.
Besides, the increafe of attracting surface at the arched top
of the tube, by means of which a greater number of mer-
curial particles may come into contact with the glass than
those that recede from the contact of one to another, will
also give an advantage to the attraction of the glass, and
cause the mercury, immediately in contact with it, to adhere
to it. That the attraction of cohesion, as already explained,
is the caufe of this phenomenon is plain, because the
experiment will not succeed when the mercury is not well
purged of its air, nor even then if the bore of the tube is
large.

The Torricellian experiment makes what we now call
the barometer.

Torricellian Vacuum, is the vacuum produced by
filling a tube with mercury, and allowing it to defcend
to such a height as is counterbalanced by the preffure of
the atmosphere, as in the Torricellian experiment and barometer.
For the method of rendering this vacuum luminous by elec-
tricity, see Electrical, Exp. 15.

Torricello, in Geography, a town of the duchy
of Parma, on the Po; 12 miles N.W. of Parma.
Torrid Zone, See Zone.

Torrigia, or Torreglia, in Geography, a town of
the Ligurian republic; 15 miles N.E. of Genoa.

Torrijos, a town of Spain, in New Cafhile; 15
miles N.W. of Toledo.

Torromore Head, a cape of Scotland, on the E.
coast of the islad of Skye. N. lat. 57° 22'. W. long.
6° 2'.

Torrin-Beg, a rock on the S.W. of the islad of
Mull. N. lat. 56° 19'. W. long. 6° 20'.

Torrington, or Great Torrington, as it is
generally called, to diftinguish it from a village of the fame
name, is a market-town in the hundred of Fremington,
and county of Devon, England; 36 miles N.W. from Exeter,
and 197 miles W. by S. from London. The town is situ-
ated, partly on the fummit, and partly on the declivity of
an eminence which forms the caffen bank of the river Tor-
riddle. On the fouth fide are fome flight veftiges of an
ancient caffen, the origin of which is unknown; though,
according to Ridfon, it was the head of a notable baryon,
which continued from the Conqueft to the time of Edward I.
Its feite is now used as a bowling-green, and commands a fine
profpect. The river is here fesen to flow in a graceful cur-
rent along a narrow valley, inclofed by floping ridges,
and having a beautifully wooded back-ground. Torrington
was formerly infetted with the privilege of having reprefentatives
in parliament; but no return has been made fince the reign
of Henry VI. Its government is veited in a mayor, eight
aldermen, and feventeen burgreffes, who act under a charter
granted by queen Mary. The town confifts chiefly of one
long ftrert, "indifferently beautiful," fays Ridfon, "with
buildings very populous, and flourishing with merchants and
men of trade." The population return of the year 1811,
states the number of houses to be 414; the number of in-
habits 2151: the chief employ of the latter arises from
the woollen manufacture. A weekly market is held on Sat-
urdays; and here are four annual fairs. The parish con-
tains two churches, the moft ancient of which is furnished
with a library. In the town are fome ancient alms-houfes,
poffeffing the right of commongage on an extensive piece of
ground given by William Fitz-Robert, baron of Torring-
ton, in the reign of Richard I. Here is likewife a charity-
school for thirty-two boys. Margaret, countefs of Rich-
mond, mother of Henry VII., refided fome time in Torr-
ington, and was a confiderable benefactor to it.

At Fretel-hitoke, a village oppofite Torrington, on the
W. fide of the Torridge, are the ruins of a priory, founded
by Sir Roger Beaufhamp, in the reign of Henry III., for
fecular Augufline canons. At the difflution, the annual
revenues were valued at 127l. 2s. 4d. The feite of the priory
is now a farm-yard. The chief remains of the buildings
are the walls of two or three apartments, the weft window
of the conventual church, which still continues perfect,
and the great gate.

Near Torrington is Crofs, late the feat of H. Stevens,
eq, a handsome manfion, looking down on the romantic
feenery which encompaffes the bridge and the banks of the
Torridge.

A few miles from Crofs, southward, are the ruins of an
old manfion called Heanton, formerly a feat of the Rolles,
afterwards of lord Oford, and latterly of lord Clifton, who,
after its late demolition by fire, cut down the oaks which
were in the park, forming woods and groups of the noblest
Devonshire, by J. Britton and E.W. Brayley, 1803. Pol-
whale's Hilfory, &c. of Devonhile, folio, 1797.

Torrington, a town of the flate of Connecticut; 22
miles W.N.W. of Hartford.

Torrington Bay, or Bedford's Bay, a bay on the S.
coast of Nova Scotia; 3 miles N. of Halifax.

Torro, a river of Africa, which runs into the
Scherbro.

Torroff, a town of Bengal; 70 miles N.E. of
Dacca. N. lat. 24° 20'. E. long. 85° 18'.

Torrum, a town of Sweden, in the province of
Blekingen; 10 miles S.E. of Carlferona.

Torryburn, a feaport town of Scotland, in Fif-
eshire, on the Frith of Forth, with a good harbour,
to which belong thirteen veftels, amounting to upwards of
1000 tons.

Torsaker, a town of Sweden, in Angermanland;
27 miles N. of Hernofand—Alfo, a town of Sweden, in
the province of Gefcia; 15 miles S.W. of Gefe.

Torsang, a town of Sweden, in the province of
Dalecarlia; 10 miles S. of Falun.

Torsas, a town of Sweden, in the province of Smal-
land; 18 miles S.S.W. of Calmar—Alfo, a town of Swe-
den, in the province of Smaland; 16 miles S.W. of Wesio.

Torseera, a town of Hindooftan, in the cirec
of Sumbulpor; 16 miles S. of Sumbulpor.

Torsella, a town of Sweden, in Sudermanland,
on a river which runs into the Malar lake; 46 miles W.
of Stockholm.

Torsok, a town of Russia, on the route from
Peterburgh to Moscov, 71 verfs dillant from Vyfhi-
Voloshok, remarkable for a fpring superflitiously venerated
and attracting pilgrims from all parts. This town has no
less than 20 churches, fome of flone; and is in a thriving
condition. See Torox.

Torsiano,
causing the plates to start, so as to be easily detached from the bone. These plates vary in thickness, according to the age and size of the animal, and measure from an eighth to a quarter of an inch in thicknesses. A large turtle is said to afford about eight pounds of tortoise-shell; or, according to M. Schoepf, from five to fifteen or twenty pounds; and unless the animal itself be about the weight of 150 pounds, the shell is not worth much.

In order to bring tortoise-shell into the particular form required on the part of the artist," says Dr. Shaw, "it is steeped in boiling water, till it has acquired a proper degree of softness, and immediately afterwards committed to the pressure of a strong metallic mould of the figure required; and where it is necessary that pieces should be joined so as to compose a surface of considerable extent, the edges of the respective pieces are first scraped or thinned, and being laid over each other during their heated state, are committed to a strong press, by which means they are effectually joined or agglutinated. These are the methods also by which the various ornaments of gold, silver, &c. are occasionally fixed to the tortoise-shell, which is not capable of being melted, as vulgarly supposèd. The Greeks and Romans appear to have been peculiarly partial to this elegant ornamental article, with which tortoises were frequently covered the doors and pillars of their houses, their beds, &c. In the reign of Augustus, this species of luxury seems to have been at its height in Rome." Shaw’s General Zoology, vol. iii. pt. 1.

The Egyptians, says Mr. Bruce in his Abyssinian Travels, dealt very largely with the Romans in this elegant article of commerce. According to Pliny, the cutting of them for finering or inlaying was first practised by Carvilius Pollio; and this circumstance leads us to presume, that the Romans were not acquainted with the art of separating the laminate by fire placed in the inside of the shell, when the meat is taken out; for these scales, though they appear perfectly distinct and separate, nevertheless adhere, and more frequently break than split, where the mark of separation may be distinctly seen. Martial says, that beds were inlaid with it. Juvenal and Apuleius mention, that the Indian bed was all-over finiring with tortoise-shell on the outside, and swelling with stuffing within. The immense use made of it at Rome may be inferred from what Velleius Paterculus says, who observes, that when Alexandria was taken by Julius Cæsar, the magazines were so full of this article, that he proposed to have made it the principal ornament of his triumph, as he used ivory afterwards, when triumphing for having happily finired the African war. This finiture has been, in more modern times, a great article in the trade to China.

Tortoise-shell colour may be given to horn, by first preëssing the horn into proper plates or scales, and tempering two parts of quick-lime and one of litharge to the consistence of a soft paste with soap-lye. Let this paste be laid over all the parts of the horn, except such as are proper to be left transparent, and thus let it remain till it be thoroughly dry; when the paste being brushed off, the horn will be found partly opaque and partly transparent, like tortoise-shell. Semi-transparent parts may be added, by mixing whiting with some of the paste to weaken its effect in particular places, by which means spots of a reddish-brown will be produced, which will increase the beauty of the work as well as its resemblance of real tortoise-shell. Handmaid to the Arts, vol. i. p. 518.

Tortoise, in the Military Art. See Testudo.

Tortoise, River of, in Geography, a river of North America, in Louisiana and Florida, formed by the Mississippi.

TORTOLA.
TORTOLA, a town of Spain, in New Cañi; 5 miles N.E. of Guadalaxara.—Alfo, a town of Spain, in New Cañi; 8 miles S. of Cuenca.—Alfo, one of the Virgin islands in the West Indies, first settled by a party of Dutch Bucaneers, who built a fort for their protection; but who, in the year 1666, were driven out by another party of the same adventurers, calling themselves English, and pretending to take possession for the crown of England; and the English monarch, if he did not connive at the enterprise, made no exertion to take the benefit of it: for Tortola and its dependencies were soon afterwards annexed to the Lee ward Island government, in a compulsion granted by king Charles II. to Sir William Stapleton. The Dutch had done little towards the cultivation of the island, when they were expelled; but the chief merit of its improvements was reserved for some English settlers from the little island of Anguilla, who, about a century and a quarter ago, embarked with their families and settled in the Virgin Islands; which fee. Tortola is not more than 15 miles long and 6 miles broad. Its chief and almost only staple productions are sugar and cotton. N. lat. 18° 20'. E. long. 64° 20'.

TORTOLI, a town of the island of Sardinia, near the E. coast; 50 miles N.N.E. of Cagliari.

TORTONA, a town of France, in the department of Marengo, on the Scrinia; late the see of a bishop, suffragan of Milan, with a good citadel, situated on an eminence. This place has often been taken and retaken during the different wars in Italy. It gives name to a district called Tortone; 9 miles E. of Alexandria. N. lat. 44° 53'. E. long. 8° 52'.

TORTORELLA, a town of Naples, in Principeato Citra; 5 miles N.E. of Policargo.

TORTORICI, a town of Sicily, in the valley of Demon; 30 miles N.W. of Taormina. N. lat. 38° 9'. E. long. 142'.

TORTOSA, a town of Spain, in the province of Catalonia, situated near the Ebro, about 15 miles from its mouth; the see of a bishop, suffragan of Saragossa. It is said to have been founded 2000 years before the Christian era, but the proofs of this illustrious origin are unfortunately lost. Scipio gave it the name of "Dordofa," and made it a municipal city. Among the numerous and trifling combats between the Spanish and the Moors, there was one in which the women of Tortosa signalized themselves. They courageously mounted the ramparts of their city, and performed such prodigies of valour, that Raymond Berenger, the last count of Barcelona, in a fit of emotion, for them, in 1170, the military order of the hacha, or flambeau. They merited and obtained the same day several honourable privileges, which exist not at present; they have however preserved the right of precedence in matrimonial ceremonies, let the rank of the men be ever so distinguished. The most remarkable buildings are the cathedral and the castle; the latter of which is a mile square, and in a state of decay; and only serves as a place of residence for a governor; 81 miles S.E. of Saragossa. N. lat. 45° 47'. E. long. 9° 26'.

—Alfo, a sea-port of Syria, in the pachalic of Tripoli, anciently called "Antaradus" and "Orthofa." This town appears to have been built about the fifth or sixth century; it is situated on the sea, and may be about three-quarters of a mile in circumference. The ancient walls are of large hewn stone; without them there are other lower walls, with a fosse round them. At the N.W. corner there are great remains of the castle, and the present town is within the walls of it, which are strong, and built of large hewn stone, rufhicated. They are of a surprizing height, being at least fifty feet high, and the whole is near half a mile in circuit. Within the walls there is a church. Towards the E. cor ner of the city there is also a very beautiful large church; it is built of hewn stone inside and out, and consists of three naves; it does not seem to have been finished, and probably is a building of the sixth century; it is of the Corinthian order; and the arches, which are executed with the plain olive leaf, are built on square pillars, covered on the four sides with semi-circular pilasters. The pulpit was fixed to one of the pillars, and over it there is an inscription in the Syriac language. When Jerufalem was in the hands of the Christians, Torto was the see of a bishop, suffragan of Tyre; 35 miles N. of Tripoli. N. lat. 34° 55'. E. long. 32° 28'.—Alfo, a river of Syria, which runs into the Mediterranean, between Antioch and Tripoli.—Alfo, a cape of Spain, on the coast of Catalonia. N. lat. 40° 43'. E. long. 2° 47'.

TORTUE, a river of America, which runs into the Wabaf, N. lat. 39° 32'. W. long. 87° 55'.

TORTUES, a river of Louifiana, which runs into the Missouri, N. lat. 38° 26'. W. long. 94° 24'.

TORTUGA SALADA, an island in the Caribbean sea, about 36 miles in circumference; the east end is full of rugged and broken rocks, which stretch themselves a little way out to sea. At the east-east part is an indiffident good road for shipping, and much frequented in peaceable times by merchants, which come hither to trade. From May to August: for at the east end is a large salt-pond, within 200 paces of the sea. Near the west extremity of the island, on the south side, there is a small harbour, and some fresh water. The end of the island is full of shrubry trees; but the east end is rocky, and bare of trees, producing only coarse grass. Upon it are some goats, but not many. The turtles or tortoises come into the sandy bays to lay their eggs, and from hence the island has its name. There is no anchoring anywhere but in the road where the salt-ponds are, or in the harbour. N. lat. 11° 7'. W. long. 64° 30'.

Tortuga, an islet about six miles from the north coast of the island of Hispaniola, about 40 miles in circumference. N. lat. 20° 41'. W. long. 72° 40'.

TORTUGAS POINT, a cape of South America, on the coast of Chili, near Coquimbo.—Alfo, the south point of the port of Coquimbo, on the coast of Chili. The road or harbour is well sheltered, but will not contain above 20 or 30 vessels safely. S. lat. 20° 37'.

Tortugas Shoals, shoals and rocks in the gulf of Mexico, near the coast of East Florida. N. lat. 24° 36'. W. long. 82° 50'.

Tortugas, Dry, shoals in the Florida streams, at the entrance of the gulf of Mexico. N. lat. 24° 40'. W. long. 82° 25'.

TORTUGILLA, a small islet in the Spanish Main, near the coast of South America. N. lat. 8° 45'. W. long. 76° 20'.

TORTULA.


This is a most natural genus, the character of whole fringe cannot be mistaken. Barbula of Hedwig differs only in having round-headed male flowers, on a separate plant from the female, instead of axillary bud-like ones, on the same individual. This is a difficult and obscure distinction, without any natural difference. Of Barbula Hedwig defines twelve species, of Tortula three. Of the two genera united, nineteen are now enumerated as natives of Britain and Ireland only, exclusive of five of Hedwig's, not as yet discovered among us, so that twenty-four are known in all.

The habit of the genus here described is rather dwarf; the stems erect, sometimes short or nearly wanting; root fibrous, mostly perennial; leaves entire; fruit-flanks terminal or lateral; capule nearly erect; generally even, rarely furrowed; lid conical or awl-shaped; fringe long, brown, or deep red, elegantly twisted, its points rather loose and spreading.

The species are, in many cases, difficult to ascertain, and probably some of the smaller ones are too much multiplied. All our native ones are figured in English Botany. We shall here feele some of the principal, in order to exhibit, as in other inferences, a compendious view of the genus.

T. rigida. Rigid Screw-mofs. Fl. Brit. n. 1. Engl. Bot. t. 186. (Barbula rigida; Hedw. Crypt. v. 1. t. 65. t. 25. Bryum rigidum; Hud. 477. B. acaulon, orice tenuifolia Gerardi folio; Dill. Mucf. 388. t. 49. f. 55.)—Stem very short. Leaves spreading, rigid, involute, obtuse, ribbed. Capule cylindrical. Lid conical. Found on rocks, walls, chalky banks and cliffs, bearing capsules in the winter and early spring, not only in England, but in various parts of Europe, from Sweden to Greece. The writer of the present article first discovered and distinguished this humble moss, since the time of Dillenius, on a bank on the right hand of the road from Norwich towards Yarmouth, a little beyond Thorpe. It agrees in size with the most common of mosses, T. muralis, hereafter mentioned, but differs in the thickness and dark colour of its almost linear leaves, which have no hair at the point. The fruit-flask is solitary, red, half an inch to an inch high. Capule inclining, cylindrical, smooth, dark brown, with a slender veil and lid. Fringe brown, of thirty-two fine teeth. The foliage is incurred when dry.


41. Schrad. Spicil. 66.)—Stem much branched. Leaves all ovate, acute, keeled, with a midrib. Sheaths between the branches, imbricated. More common than the last, in England, Sweden, and Germany; bearing capsules in March. The tufts of this are much higher, the branches being more slender and more numerous. Leaves more ovate and pointed; those of the sheath more numerous, ribbed, imbricated, not rolled together, differing little from the proper foliage. Fruit-flasks tawny, or red. Capule erect, somewhat ovate, smooth, with a shorter thicker lid than that of T. convoluta, with which the present species has usually been confounded.

T. fallata. Sturdy Furrowed Screw-mofs. Fl. Brit. n. 6. Engl. Bot. t. 2384. (Bryum fallatum; Dickf. Crypt. facc. 2. 6, excluding the synonyms.)—Stem none. Leaves ovate, keeled, incurved. Capule erect, ovate, somewhat cylindrical, furrowed. Lid oblique.—Hitherto gathered only by our great English cryptogamist Mr. Dickson, about Banks, and by the sides of rivers, in Scotland. The synonyms he has applied to it are fully pointed out by Hedwig as erroneous, and belonging in fact to three different species. But Hedwig himself errs far more unaccountably, in ascerting Mr. Dickson's moss to be merely T. convoluta. The want of a stem, smaller size of the whole plant, and, above all, the strongly furrowed capule, singular perhaps in the whole genus, afford sufficient distinctions. The fringe and lid are as long as the capule; veil much longer. There appears to be no sheath to the solitary fruit-flask, whose height is half an inch.

T. rurals. Great Hairy Screw-mofs. Erhr. Crypt. n. 184. Fl. Brit. n. 7. Engl. Bot. t. 2070. (Barbula rurals; Hedw. Sp. Mucf. 121. Bryum rurale; Linne. Sp. Pl. 1581. B. rurale unguiculatum hirutum, elatus et ramosus; Dill. Mucf. 352. t. 45. t. 12.)—Stem branched. Leaves obtuse, recurved, hair-pointed; the uppermost falcate. Capule cylindrical, somewhat ovate.—Common on walls, roofs, and the trunks of trees, throughout Europe from Sweden to Greece, bearing fruit from January to April. This is much larger than any of the foregoing, the stems, mottly about two inches high, composing broad cushion-like patches, of a dirty hoary aspect in dry weather; dark green in wet; bearing abundance of upright capules, on long red flanks, in winter and spring. The leaves, recurved in every direction, are very abrupt, with a strong rib, ending in a long, roughish, wavy hair. Capule falcate, the teeth of its fringe united at the bottom into a firm, partly perforated, tube, which lacks character in this, the fulbulata, and a few other Tortula, has given occasion to Mohr to establish a genus by the name of Syntrichia; but it seems to us better avoided.

T. fulbulata. Awn-shaped Screw-mofs. Hedw. Sp. Mucf. 122. t. 27. Fl. Brit. n. 8. Engl. Bot. t. 1101. (Bryum fulbalatum; Linne. Sp. Pl. 1581. Curt. Lond. facc. 1. t. 66. B. capulis longis fulbalatis; Dill. Mucf. 350. t. 45. f. 40.)—Stem nearly simple, short. Leaves ovato-lanceolate, pointed. Capule cylindrical. Lid awl-shaped, strait.—Common in damp shady places, in the southern and middle countries of Europe; rare in Sweden, and even in Scotland. It forms dense perennial tufts, of a fine deep green, bearing capsules in March and April. The leaves are broad, nearly ovate, tipped with a point, sometimes elongated into a hair, when it becomes the T. pilosus of Schrad's Spicil. 66. The fruit-flasks are terminal, an inch or more in height, rather flat, but seldom straight. Capule alnimt erect, long and falcate, with a long taper lid and veil. Fringe united into a spiral tube for three quarters of its length.
T. murale. Wall Screw-moss. Hedw. Sp. Mucf. 123. Fl. Brit. n. 9. Engl. Bot. t. 1033. Bryum murale; Linn. Sp. Pl. 1581. B. tegulare humile, pilosum et incanum; Dill. Mucf. 355. t. 45. f. 14.—Stem mostly simple, very short. Leaves ovate, acute, hair-pointed. Capfule cylindrical, slightly elliptical. Lid conical.—This is perhaps the most universal of all mosses throughout Europe. Every wall and bank is covered with it, and the abundant capsules, produced in winter and spring, remain in a dry and empty state almost throughout the year. The roots are perennial. Stems very short, though sometimes divided, compoing broad dark-green patches, not dense elevated tufts, and rendered hoary by the terminal white hairs of the leaves. These hairs, however, vary in length, and are sometimes scarcely discernible. Fruit-flalk terminal, straight, reddish-brown, near an inch high. Old capfule a little curved when the fringe falls off. The latter is so much twisted as in most other species, the teeth, all separate and parallel, making hardly more than one turn. Lid red, not half so long as the capfule, slightly oblique. Veil as long as both together, flender, brownish.

T. cuneiformis. Wedge-shaped Screw-moss. Fl. Brit. n. 10. Engl. Bot. t. 1510. (Bryum cuneiformis; Dickf. Crypt. f. 5. 7. B. murale s.; Hudif. 477. B. humile, pilis carens, viride et pellucidum; Dill. Mucf. 356. t. 45. f. 15)—Stem very short, mostly simple. Leaves ovobariate, reticulated, pellucid, slightly pointed. Capfule cylindrical. Lid conical.—Found on banks and sandy ground, at Streatham, Surrey, and abundantly about Oxford, according to Dillenius. Mr. D. Turner gathered the specimens figured in Engl. Bot. on some old banks at Hpton, near Yarmouth. This moss is said to be biennial, bearing capsules in the early spring, and compoing broad indeterminate patches. When carefully examined, it cannot be confounded with any variety of the last. The leaves are of a brighter green, flrongly reticulated, pointef. Capfule more oval, with a longer, more awl-shaped, lid; its fringe bright red, or crimson, repeatedly and closely twisted together, which alone would distinguish this species from the preceding.

T. tortuosa. Frizzled Mountain Screw-moss. Hedw. Sp. Mucf. 124. Fl. Brit. n. 12. Engl. Bot. t. 1708. (Bryum tortuolum; Linn. Sp. Pl. 1583. Dickf. Dr. Pl. 48. B. cirrata, ferris et capulis longioribus; Dill. Mucf. 377. t. 48. f. 40)—Stem branched, level-topped. Leaves linear near to lanceolate, keeled; twisted and unrolled when dry. Capfule cylindrical, lightly ovate. Fringe lax.—Plentiful on the mountains of Wales, Scotland, and the north of England, Derbyshire, &c. as well as in Sweden, Switzerland, Germany, Italy, and, according to Dillenius, in Virginia. It bears capsules in summer, but not very conftantly. A large and handsome species, whose fronds, from two to four inches high, compose both and soft tufts, of a most beautiful green, the leaves being long and taper, frizzled when dry, especially at the rough, or minutely crenate, edges. Fruit-flalks an inch and a half or two inches high, bright crimson; pale yellow at the summit. Capfule inclining, flender, smooth, light brown, crimson at the mouth; finally erect. Lid taper, half as long as the capfule. Fringe long, crimson, gradually unrolled, and partly spreading or straight, approaching the character of a Trichostomum. See that article hereafter.

T. barbata. Bearded Lateral Screw-moss. Fl. Brit. n. 14. Engl. Bot. t. 2391. (Bryum barbatum; Curt. Lond. f. 4. t. 65. B. unguiculatum et barbatum, tenus et felletum; Dill. Mucf. 384. t. 48. f. 48.)—Stem branched from the base. Leaves elliptic-lanceolate, spreading, somewhat revolute. Fruit-flalks lateral. Capfule ovate.—Native of walls and barren heaths, in the winter and spring, said to be not unfrequent about London, particularly at Charlton, where nevertheless we have many a time sought it in vain. Mr. Hudson is reported to have confounded this species with T. cuneiformis, or perhaps nervosus, above described, though certainly none of the genus can be more essentially unlike. The fronds are level-topped, branched from the base, clothed with dark-green, single-ribbed, bearded leaves, recurved when dry; the uppermost forming a kind of star at the top of each branch. The fruit-flalks seem to spring from the base of each branch; yet the flower, to which each owes its origin, perhaps terminated the foot of the preceding feafon. Capfule small, erect, ovate, polifhed. Fringe red, not very much twisted, more than half the length of the capfule. The lid is represented by Curtis nearly as long as the capfule, awl-shaped, and oblique. The specific name was meant to conftrast this moss with the following, supposed to have no fringe; so that few names can be more exceptionable than either.

T. imberbis. Decidious Screw-moss. Fl. Brit. n. 15. Engl. Bot. t. 2392. (Bryum imberbe; Linn. Mam. 309. B. tenue, imberbe et pallidum, foliis crebrisioribus; Dill. Mucf. 382. t. 48. f. 45.)—Stem branched. Leaves awl-shaped, spreading; ovate at their base. Stalks about the upper part of the branches. Capfules cylindric, somewhat elliptical.—Found on dry banks, walls, and amongst grafts, perfecting its capsules very early in the spring. This has much the habit of the last, but its leaves are of a paler yellowish-green, more tapering and channelled, turning inward in drying. Fruit-flalks purplish, an inch high. Capfule more cylindric and longer, while the lid is shorter than in T. barbata. Fringe light brown, very soon decia- duous, whence Dillenius thought it to be wanting, and his definition led Linnaeus to apply the faulty name, which still flicks to this species.

T. ariflata. Short-pointed Screw-moss. Fl. Brit. n. 16. Engl. Bot. t. 2393. (Bryum ariflata; Dickf. Crypt. f. 4. 12. t. 11. f. 7.)—Stem branched, level-topped. Leaves oblong, obtuse, with a minute point; curved inward and twifled when dry. Capfule cylindric.—Found on walls at Croydon, Surrey, by Mr. Dickfon, who first defcribed this moss, and to whom we are indebted for the specimens. The fronds are perennial, branched and level-topped, much in the manner of the two foregoing. Leaves rather abruf, with a very small terminal point: by drying they become twifled, enfolding the branch in a spiral order, and are neither recurved nor inflexed. Fruit-flalks terminal, crimson, scarcely an inch high. Capfule cylindric, of a light flining brown, thin and semi-pellucid. Lid incurved, tapering, tawny, almost equal in length to the capfule. Fringe soon falling off.

TORTURA, or TANTUR, in Geography, a town of Palatina, on the coast of the Macedonian, called in the scripture Dor, Dora, and Nephot. Josuah took it from the Canaanities, and it fell to the tribe of Manasseh. Tryphon, tyrant of Syria, after the murder of Antiochus VI. fled to this place for shelter; but he was soon compelled to abandon it, and shortly after lost his life. In the times of Christianity it was erected into a bishopric under the archbishop of Caesarea. It is at present a village only. The environs abound in grain, cotton, and fruit: wheat in particular is abundant, and of a quality inferior to the other parts of Palatine and Syria; 15 miles S. of Acre. N. lat. 32° 35'. E. long. 34° 2'.

TOR
TORTURA, a word appropriated by many medical writers, to express only the distortions of the face, and particularly of the mouth, in convulsions.

TORTURE, a grievous pain inflicted on a criminal, or person accused, to make him confess the truth.

The forms of torture are different in different countries. In some they use water, in others iron, in some the wheel or rack, in some the boot, thumbsnails, &c. See Rack, Boot, &c.

Torture itself is from Latin 'torrare,' and means to be seized by fits of pain, to suffer inflammation.

The marquis Beccaria (chap. 16.) with exquisitely ratiocinates proposes this problem: the force of the muscles and the sensibility of the nerves of an innocent, person being given, it is required to find the degree of pain necessary to make him confess himself guilty of a crime.

TORTYRA, in Ancient Geography, the name of one of the seven towns which Cyrus gave to his favourite Pythaeus, supposed to be in the environs of Afa Minor. Athens, and

Torus, in Architecture. See Toric.

Torus, in Botany and Vegetable Physiology, a name applied by Mr. Salisbury to what is termed by Linnaeus either the receptacle of the flower, or a glandular nectary surrounding the calyx of the germb. Jullien and his followers call it 'idius hypogynus,' alluding to its form, as well as its situation. The word torus is very descriptive, as expre sing the frequent resemblance of the part in question to what usually forms an architectural column, and it is certainly preferable to the compounded appellation just mentioned. A very curious lobed and plaited torus may be seen in Cognac, but we believe it to be strictly a glandular nectary. Mr. Brown's natural order of 'Epacridae' contains some genera with five separate glanss, of a like nature, indubitably (in our opinion) nectariferous; and others with an uninterrupted annular nectariferous disk, or torus, under the germs. It does not follow, because Linnaeus has sometimes misapplied the term 'nectarium,' that there is no such thing in nature; but his opponents have wished to obscure and invalidate that term, because he has in general, with so much originality and success, employed it for the clear and concise determination of genera. This displays a want of candour, unbecoming disinterested students and admirers of Nature.

Torus, in Ancient Geography, a mountain of Sicily, between Hercules and Agrigentum.

TORUSCULA, a word used by some medical writers to express a tub.

TORY. See Toreis.

Tory Isl., in Geography, an island lying north of Bloody Ferland Point, in the county of Donegal, about 61 miles from the main land. It is said to be extremely fertile.

TORYNE, in Pharmacy, the name of a kind of fpatsila intended for strewing up the ingredients of decoctions while boiling.

TORYNETOS, a name given by some to a mixture of bread and water boiled together, whether meant as a kind of a panada, or for a poultice.

TORZA, in Geography, a town of Persia, in the province of Irak; 40 miles E. of Hamadan.

TORZOK, a town of Ruffia, in the government of Tver, on the Tvertza; 40 miles W.N.W. of Tver. N. lat. 57°. E. long. 35° 14'. See Tornhok.

TOSA, a sea-port town of Spain, in the province of Catalonia; 23 miles S.S.E. of Gerona. N. lat. 41° 43'. E. long. 2° 48'.--Alto, a river of Italy, which runs into lake Maggiore; 4 miles N.E. of Omegna.--Allo, a town of Japan, capital of a province of the island of Xicoco, on the south coast. N. lat. 33° 40'. E. long. 134° 50'.

TOSALE, in Ancient Geography, a town of India, on the other side of the Ganges, and near it, which had the title of metropolis. Ptolemy.

TOSANLI, in Geography, a river of Natolia, which waters the city of Tocat, and afterwards joins the Jekillemak. It was anciently called Lycus.

TOSCARAN, a town of Peria, in the province of Irak; 21 miles S. of Hamadan.

TOSCANELLA, a town of the Popedon, in the Patrimonio, the see of a bishop, suffragan of Viterbo; 9 miles W.S.W. of Viterbo. N. lat. 42° 24'. E. long. 11° 52'.

TOSCANELLI, Paolo, in Biography, an eminent astronomer, was born at Florence in 1397. Declining the profession of his father, who was a physician, he devoted himself to the study of geometry and astronomy, and also of the Latin and Greek languages. He was one of the curators of Niccoli's library, and conversant with the solar motions. He corrected the astronomical tables of Alphonse and the Arabians. Of his astronomical tables he left a memorial in the great dial fixed upon the metropolitan church at Florence, erected about the year 1468. He died in 1482, at the age of 85.

TOSCOLANO, in Geography, a town of Italy, in the department of the Benaco, on a small river which runs into lake Garda. Here is a manufacture of cloth, with some paper and iron-mills, 6 miles E.N.E. of Salo.

TOSENA, a town of Sweden, in Ost Gothland; 20 miles W.N.W. of Uddevalla.

TOSI, GIOSEPPE FELICE, of Bologna, in Biography, maestro di capella at Venice the latter end of the 17th century, and composer of five operas for that city between the years 1684 and 1690. (Gloria della Poetria.) Befide thefe dramas, he composed others for Bologna. His name, however,
however, will be longer remembered by the merit of his son, than by his musical productions, which have been long lost and forgotten. See the next article.

Tosi, Pier Francesco, Accademia Filasmonico di Bologna, and not only an eminent opera singer, in Soprano, during his youth, but a composer of cantatas, in which the recitatives were particularly impassioned, energetic, and impressive, and author of an excellent treatise on singing, well known in England, by the late Mr. Galliard’s admirable translation.

The author of this treatise seems to have had no partiality for rapid execution. His own favourite style of singing was the pathetic, which he describes and recommends by excellent precepts. Though this elementary treatise has been written more than fourscore years, no work of the same kind has been produced in Europe since its publication, but upon Tosi’s model, and in confirmation of his precepts.

The excellent composer of the old school, Galliard, a profound and experienced judge of every species of musical merit, not only recommended its use to the first musical professors, instrumental as well as vocal, by an admirable translation and notes in 1740, but by his examples instantly excited it into a classical work.

In 1757, Agricola, opera composer to Federico II., king of Prussia, and the best singing-master in Berlin, published a translation of it with useful and instructive notes, which made the work well-known in Germany; a knowledge which Willem of Leiprecht much increased by frequent extracts from it, in his musical journals.

And in 1774, Mancini, singing-master to the archdukes of Vienna, published a treatise on singing of great merit, founded on the work, and confirming the principles of Tosi, of whom he speaks with the highest respect in his chapter on “Intonation.” “Giovanna non poco si ogni secolare leggera ‘nel libro tanto stigmati di Pier Francesco Tosi. A carte 12, la spiegazione, che ello fa sopra il femituo maggiore, e minore, appunto per sapere la quantità degli intervalli, o su delle commie, chi le compone.” —It will be of no small service to students in singing, if they read in the work of P. F. Tosi, (p. 12. of the original,) the explanation which he gives of major and minor tones, that they may know precisely the quantity of the several intervals, or rather commas, of which they are composed.” See Mancini, for the original title and further account of his book.

Of Tosi’s life but little is known, except from Galliard’s prefatory discourse to his translation; who tells us that he was a finger of great esteem and reputation. He sung on the stage at Venice in 1707, in the opera of “Olibrio,” written by Apolito Zeni, and let by Gasparrini, where he is styled Virtuoso di S. A. Electoraleo Palatina. He spent the chief part of his time, according to Galliard, in travelling, and by that means heard the most eminent singers in Europe; whence, by the help of his refined taste, he made the observations which are contained in his book. Among many excursions, his curiosity was excited to visit England, where he resided for some time in the reigns of King James II., king William, George I., and beginning of George II. He was very much esteemed by persons of rank wherever he went; among whom, in England, was the late earl of Peterborough, whom he had often met in his travels on the continent, to whom he had dedicated his book, though it was printed at Bologna in 1723, some time after he had quitted England. The emperor Joseph I. gave him an honourable employment in some part of Italy, and the archduches, a church retirement in Flanders, where he died.

The original title of his book, which is now become scarce, is, “Opinione de’ Cantori Antichi e Moderni o Sieno Offervazioni sopra il Canto figurato.” 8vo.

The earl of Peterborough, to whom he dedicates his book, was one of the best informed judges of dramatic music and performance in his time. He married the amiable and accomplished Mrs. Annabella Robinson, after a very long courtship. (See her article.) Tosi used to meet Bononcini, and all the first opera singers of the time, at the earl’s villa, at Parson’s Green; and we remember hearing Monticelli, Reginelli, and Manzoli, speaking with great respect of the “Trattato di Tosi.”

TOSIA, in Geography, a neat town of Asia, in Notulia, built on the site of a hill, at the foot of which is a fine fertile country; 70 miles S.S.W. of Sinoh.

TOSICIA, a town of Naples, in Abruzzo Ultra; 7 miles S. of Terrano.

TOSINO, a river which crosses the marquisate of Ancona, and runs into the Adriatic, N. lat. 42° 57’. E. long. 13° 55’.

TOSMUANASSA, in Ancient Geography, a town of Asia, in Bactria. Politeny.

TOSNA, in Geography, a river of Russia, which runs into the Neva, near Pechora, in the government of Petersburg.

TOSNITZPACH, a river of Austria, which runs into the river Erlebach, 2 miles below Scheibins.

TOSOLIC, a town of Thibet; 35 miles S. of Tourfan.

TOSON-HOTOC, a town of Chinese Tartary; 88 miles S.S.W. of Haratoube.

TOSPICTES, in Ancient Geography, a country of Asia, in Greater Armenia, S. of the sources of the Euphrates and Tigris. Politeny.

TOSQUIATOSY CREEK, in Geography, one of the branches of the Allegany river.

TOS, a river of Switzerland, which runs into the Rhine, 2 miles S.E. of Egglisau, in the canton of Zurich.

TOSQUAQUA, a town of Peru, in the audience of Quiot; 110 miles W. of Quiot.

TOSSE, a town of France, in the department of the Landes; 12 miles W. of Dax.

TOSSIAT, a town of France, in the department of the Ain; 7 miles S.E. of Bourg-en-Bresse.

TOSIGNANO, a town of Italy, in the department of the Aosta; 13 miles W. of Ferrara.

TOSO, a town of Sweden, in West Gothland; 42 miles N.N.E. of Uddevalla.

TOST, or TOSCHEK, a town of Silevia, in the principality of Oppeln; 26 miles S.E. of Oppeln.

TOSTA, a river of Mexico, which runs into the Pacific ocean, N. lat. 12° 30’.

TOSTAR, or Suster. See SHUS, SHUSTER, and SUSA.

TOSTERYD, a town of Sweden, in Smaland; 22 miles S. of Jonkoping.

TOSTES, a town of France, in the department of the Lower Seine; 12 miles S.W. of Arques.

TOSTO, Cape, a cape on the N. coast of Spain. N. lat. 45° 15’. W. long. 9° 15’.

TOSUN HOTUN, a town of Thibet; 550 miles W.S.W. of Tourfan. N. lat. 41° 55’. E. long. 99° 10’.

TOT VARADIN, a town of Hungary; 24 miles S.E. of Boros Jeno.

TOTA ISLAND, or Island of Planteous, an island of the Atlantic, near the coast of Africa, at the mouth of the Scherbro.

TOTANA, a town of Spain, in the province of Murcia; 11 miles N.E. of Lorca.

TOTANO,
TOTANO, or Totanus, in Ornithology, the name of a bird common in the Italian markets, and more usually known by the name of Votia; which fee.

The totanus of Limnaeus is a species of Scolopax, (which, see,) and the crest of other authors. See Rail.

TOTANUS is allowed by Petter for the Limnae; which fee.

TOTAQUESTAC, in Ornithology, the name of a beautiful American bird, described by Niezenberg from Anto

nivus Herrera. It is said to be something smaller than a pigeon, and all over of a most beautiful green; its tail-feathers are of a very great length, and are greatly esteemed. The Indians value the bird so highly, that it is death by their laws to kill it, so that when it is caught they only fling it and let it go again. Ray.

TOTEN, in Geography, a town of Norway, in the prov

ince of Agderhus; 47 miles N. of Christiania.

TOTES, a town of France, in the department of the Lower Seine; 14 miles N. of Rouen.

TOTEZVA, a town of Hungary, on the river Bodrog; 5 miles S.W. of Patak.

TOTFAU, a town of Hungary; 1 mile N. of Sich. Alfo, a town of Hungary; 8 miles W. of Podolice.

TOTILA, in Biography, king of the Ostrogoths in Italy, was a commander of the Gothic garrison at Trevigo, and upon the deposition and murder of his uncle Ereric, was chosen to succeed him A.D. 541. After several successful contests with the Romans, and the capture of their chief cities, he advanced to Tibur, within eighteen miles of the capital. In every step of his progress his conduct was con

ciliatory; he restrained his soldiers, in the career of victory, from all acts of licentiousness; and by the exercise of humanity and liberality, he attached to his service and cause his vanquished enemies. Upon his approach to the capital, the emperor Jutlinian was alarmed, and recalling Belisarius from the Persian war, sent him, already renowned for his character and exploits, to its relief. Failing in his attempts to throw succours into the city, he withdrew, and abandoned it to the d지를 of famine; so that those inhabitants who could make their escape deserted it, and those that remained importantly solicited the governor to capitulate. At length the Roman garrison retired, and one of the gates was opened to the Gothic troops, by which Totila entered the city December 17, A.D. 546. Although the conqueror spared the lives of the inhabitants, he allowed his soldiers to pillage the city, and by so doing reduced the wealthy senators and their families to absolute beggary. Having convened those few of this rank that remained, he reprehended and threatened them; but pacified by the intercession of Pelagius, he sent a respectful message to Jutlinian, offering to live with him upon amicable terms; and yet intimating, that on the rejection of his proposal he would utterly destroy Rome, and remove the fleet of war to Illyricum. The emperor referred him for an answer to Belisarius, upon which flight he began to demolish the city. As he was proceeding in the work of destruction, Belisarius re

monstrated with him on the barbarity of his conduct, and so far succeeded as to induce Totila to desist, and to march off, with his troops and the senators, to Lucania. The remaining inhabitants were dispersed in exile, and Rome was for forty days in a state of total depopulation. Belisarius seized the opportunity of taking possession of the city, repairing the fortifications to the utmost of his power, and recalling the inhabitants. Upon receiving this intelligence, the Gothic sovereign returned, and having made many unsuccessful at

ttempts for regaining possession of the city, and pacified, in repeated assaults, the chieftains of his troops, he was under a necessity of decamping, and of marching, with degraded reputation, and a discontented army, to the siege of Portu

gia. He contrived, however, to regain the confidence of his troops, and after obtaining a reinforcement, marched again for Rome, and by the treachery of some Haurian cen

tinels, became master of the city. Experience had now taught him wisdom; and he adopted every measure which he found policy dictated for conciliating his enemies. He not only repaired the walls and edifices which he had demol

ished, but recalled the senators, and restored them to their rank, and at the same time invited the citizens to take pos

sion of their property, supplying them in the mean while with provisions. He also exhibited the Circenian games, and prefaced at them with the dignity of a Roman emperor. Totila renewed his embassy to Jutlinian, making an offer of peace and alliance; but the emperor would not admit the Gothic ambassadors to an audience. The Gothic sovereign was incensed by this treatment; and fitting out a powerful fleet, took Rhegium and Tarentum, and passed over to Sicily, which he speedily reduced and pillaged; and having made himself master of Sardina and Corsica, and ravaged the whole sea-coast of Greece, whilst his troops were be

fieguing on the coast of Sicily, he was surprised by the emperor's signal for aid, and was obliged to raise the siege, and soon after he left Sicily. Jutlinian, encouraged by these fortunate events, determined to procure Italy from the power of Totila; and having recalled Beli

sarius, devoted the command of his army to Narves, who marched directly to Rome, and meeting Totila in his pro

gress, prefented to him the emperor's message, which was merely an offer of pardon. Totila seemed to regard it as an insult, and replied, that he would conquer or die. In the furious combat between the hostile armies that ensued, the Goths were driven from the field of battle, and Totila fled with no more than five attendants. In his flight he was overtaken by Albad, a leader of the Gepidae, who pierced him through the body with a lance. His faithful companions hurried him away seven miles beyond the scene of action, and had his wound dressed; but he soon after ex

pired. A private burial terminated the glory of this conqueror of Rome, whom his eulogists have celebrated for va

lour tempered by humanity and moderation, and for a go

dernment conducted with a regard to justice, and equity.

With this battle, fought in July 552, the 11th year of To


TOTIMA, in Geography, a town of Ruflia, in the go

vernment of Vologda. In the environs are several salt-pits; 92 miles N.E. of Vologda. N. lat. 60° 10'. E. long. 42° 54'.

TOTINESS, an ancient borough and market-town in the hundred of Coleridge, and county of Devon, England; is situated on the banks of the river Dart, 22 miles S.S.W. from Exeter, and 195 miles W.S.W. from London. It ranks among the most ancient towns in the kingdom; and its credit could be given to Geoffrey of Monmouth, would assume an origin coeval with the first, for here, according to this author, Brutus first landed; and the inhabitants, to corroborate the tale, still point out a place near the spot where the castle gate floor, as the very one on which he first set his foot. It is certainly, however, of remote antiquity; for Leland mentions that the Roman fort-way, extending through Devonshire and Somersetshire, began here; and Ridlon quotes a passage from Bede, which notices the ar
rival of Ambrosius and Uther-Pendragon at Totnes, when they returned from Bretagne to oppose the tyranny of Vor

tigen. The site of the town is peculiarly fine: from the margin of the Dart it climbs the steep declivity of a hill, and stretches itself along its brow; commanding a view of the winding stream and the country in its vicinity; but sheltered by
by higher grounds on every side. The piazzas in front of the houses in some parts of the town, and the higher stories projecting over the lower, are manifest proofs of its antiquity; a claim which is strengthened by the keep of its castle, a large circular building, turretted, rising from an immense artificial mound. This castle, according to Brown Willis, was erected by Judhael de Totnais (to whom the manor was given by the Conqueror), and made the head of his barony. During his residence here, he founded a priory for Benedictines, which continued till the dissolution, when its annual revenues were estimated at £24. 10s. 2d. The manor was granted in the reign of Henry VII. to Richard Edgcumbe, whose son, or grandson, in the second year of Elizabeth, conveyed it to the corporation, referring the right of a burgage-ship to his heirs for ever. Totnais was incorporated by charter of king John; and has had its privileges confirmed by several succeeding sovereigns. The corporation is vested in a mayor, recorder, thirteen burgomasters, and twenty common-councillors. The borough frilant representatives to parliament in the 23d of Edward I.: the right of election is in the corporation. At the period of the Norman survey, Totnais had immunity from taxation, excepting at those times when Exeter was rated. The parish church is a handsome edifice, having a well proportioned tower at the west end. The date of its foundation was unknown till the year 1799, when the south-east pinnacle was struck by lightning, and in its fall beat in the roof of a small room over the porch. In this room were two shells of old records, which becoming expired by this accident, among them there was found a grant of indulgence from bishop Lacey, "to those people who had or might contribute to the rebuilding of the church at Totnais." This was dated at Chudleigh, where the bishops of Exeter had a refence in 1432. The chancel is separated from the body of the church by an elegant screen of ornamental tracery in flone-work; but the altar-piece, instead of corresponding with the rest of the building, is of Greek design, having a semi-dome supported by Corinthian pillars. Totnais consists principally of one street, about three-quarters of a mile in length, terminated on the E. by a bridge over the Dart: the town was formerly surrounded by a wall, and had four gates: the east and north gate-houses are now standing. By the population return of the year 1811, the houses were estimated at 327, the number of inhabitants at 2725. Many of the labouring classes derive employment from the woollen trade, which is rapidly increasing. Five fairs are held annually, and a market weekly, on Saturday. Edward Lye, the learned author of the Anglo-Saxon and Gothic Dictionary, published in 1772, was a native of Totnais; as was also Dr. Benjamin Kennicott, well known for his collection of Hebrew MSS. The former died in 1769, the latter in 1783.

About two miles below Totnais, on the brow of a thickly wooded declivity which rises from the margin of the Dart, is Sharpham, the seat of Edmund Balfard, esq. The manor, an elegant building of freestone, was erected by captain Pownall, who loft his life at the moment of victory in a naval engagement during the American war. The daughter of that gentleman married Mr. Balfard.

On the eastern shore is Greenaway, a seat for many generations poessed by, and a residence of the family of Gilbert. Of this family, and born here, was sir Humphrey Gilbert, a celebrated voyager in the reign of Elizabeth: to him this kingdom is indebted for the discovery and settlement of Newfoundland. — Warner's Walk through the Western Counties, 8vo. 1800. Beauties of England and Wales, vol. iv. Devonshire: by J. Britton and E.W. Bralyey, 1803. Polwhele's History, &c. of Devonshire, folio. 1797.
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part of the last century. The parish-church is built of hewn stones, flints, and pebbles, and consists of a chancel, nave, two aisles, and a square embattled tower. On the front side of the church is a large brick porch, built, as appears by the architecture, about the beginning of the sixteenth century. At the east end of the north aisle is the vestry, erected in 1696, by Henry, lord Colerane, and repaired, pursuant to his will, in 1702. The building is semi-circular at the east end; its roof is in the shape of a dome. The font is octagonal, richly ornamented with tracery, and the devices of a mermaid, pelican, &c. Monuments and other sepulchral memorials abound in every part of the church. David, king of Scotland, gave this church, in the twelfth century, to the canons of the Holy Trinity in London; after the dilution of that monastery, the rectory and the advowson of the vicarage were granted, in 1544, to the dean and chapter of St. Paul's, in whom they are still vested. There is a considerable Quakers' meeting in this parish, and a chapel belonging to the Methodists. An almshouse for four men and four women was founded and endowed, in 1660, by Balthasar Sanchez, a Spaniard. A similar establishment for six men and six women was built in 1735, pursuant to the will of Nicholas Reynardson, esq.; who also made provision for a school, for twenty poor children. By the bequests of Sarah, duchess dowager of Someret, the school-house was enlarged, and the benefits extended to all the children of such inhabitants of this parish as were not professed of an estate of 20l. per annum. A charity-school for girls was established in the year 1735; also a Sunday-school for boys, and a school of industry for girls, in the year 1790. According to the return made to the population act in 1811, the number of houses in this parish was 873; of inhabitants 4571. Lysons's Environs of London, vol. iii. quarto, 1792-1811. Dyson's History of Tottenham High-Crofts, 1792.

TOTTIUM, a town of Hindoostan, in the Carnatic; 24 miles W.N.W. of Trichinopoly.

TOTTWEIL, a town of Switzerland, in the county of Baden; 4 miles S.W. of Baden.

TOVALEY, a town of Hindoostan; 16 miles S.E. of Travancore.

TOUCAN, otherwise called anser Americanus, in Astro- nomy, a modern constellation of the southern hemisphere, consisting of nine small stars. See Constellation.

TOUCAN, in Ornithology. See RAMPIASTOS.

TOUCH, or TOQE, in Coinage, the manner of expressing the fineness of gold and silver in China, by dividing it into 100 parts, so called; thus, if it be 93 touch, it contains seven parts of alloy in 100. The Chinese in general take French silver coin at 95 touch (the better informed taking it only at 93), and English silver at 94 ditto; Spanish dollars at about 92; Siam ticals, and Madras rupees, at 98; and Rajamole rupees at 99 ditto.—Also, a method of trying the fineness of gold and silver in many places, by means of a flute called touch-flone.

TOUCH, in Music. An organ is said to have a good touch, or flup, when the keys close, and lie down well, being neither too loofe, nor too flitt.

TOUCH, in Ship-Building, the broadest part of plank worked top and butt, which place is fix feet from the butt-end; or, the middle of a plank worked anchor-lock fashion. Also, the angles of the flern-timbers at the counters, &c.

TOUCH the Wind, in Sea Language, is when the fleerfinan at the helm is bid to keep the ship as near the wind as may be. See Touching.

TOUC-HOLE, or VENT, in Gunnery, is the small hole at the end of the cylinder of a gun or musket, by which the fire is conveyed to the powder in the chamber.

In a fire-lock, carabine, or pistol, it is called the touch-hole; but in a piece of cannon, it is more properly called the vent.

TOUCH-NEEDLES, small masses of gold, silver, and copper, each pure and simple, and in all the different combinations, proportions, and degrees of mixture, prepared for the trying of gold and silver by the touch-flone; by comparison with the mark they leave on it.

The metals usually tried by the touch-flone, are gold, silver, and copper, either pure, or mixed with one another in different degrees and proportions by fusion. In order to find out the purity or quantity of base metal in these various admixtures, when they are to be examined, they are compared with these needles, which are mixed in a known proportion, and prepared for this use. The metals of these needles, both pure and mixed, are all made into lamins or plates one-twelfth of an inch broad, and of a fourth part of their breadth in thickness, and an inch and half long; these being thus prepared, you are to engrave on each a mark indicating its purity, or the nature and quantity of the mixture in it.

The manner of making the touch-needles is by the proportions of the mark, a weight of half a pound, or eight ounces, being divided into sixteen half-ounces, the half-ounces each into four drachmas, the drachm into four pennyweights, and this into two half-pennyweights.

TOUCI-NEEDLES, Silver: these must be only tempered with copper, and the proportion determined by the mark divided into half-ounces and grains.

You must use therefore for this purpose one mark of such a weight, that it shall constitute a sufficient mass of metal for the making of one needle; let it weigh, for instance, one drachm, then weigh such a mark of the purest silver, wrap it up in a small paper, and upon this write sixteen half-ounces, which will signify that the whole mark of this metal is the purest silver, and make the first needles of this mass.

Next weigh fifteen half-ounces of pure silver, and one half-ounce of pure copper; wrap these both in a paper, and write on it fifteen half-ounces, which will signify that there are in that small mass fifteen parts of pure silver, and one part of pure copper; make of this the second needle. In the same manner go on with the rest, add two half-ounces of copper to fourteen half-ounces of silver, mark it fourteen half-ounces, make the third needle of this; and in the same manner proportion the small masses of silver and copper for making the other needles, and put inscriptions upon every one in the following manner.

<table>
<thead>
<tr>
<th>Mark</th>
<th>Half oz. of Silver</th>
<th>Half oz. of Copper</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
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<td>15</td>
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<td>12</td>
</tr>
<tr>
<td>16</td>
<td>0</td>
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</tr>
</tbody>
</table>

For the needle |

-8-9 half oz. of silver. |

7-8 half oz. copper.
When you have the metals in each of their due proportions, each being wrapped up in its separate paper; put each separately into a new crucible never used for any operation, and, adding a little borax, melt them together in a very quick fire, which must be well kindled before with bellows; or, what is yet better, throw them suddenly into a hot crucible, and as soon as they melt, stir them with a dry wooden peg, burn at the end, and pour them immediately into an ingot. When this is done, wrap up each mass, when cold, in its own paper again, and weigh them singly, in a nice balance; if they still weigh a whole mark, they are good; but if there is any considerable deficiency in their weight, it is a sign that your fire, having been too weak, or of too long duration, has consumed as much copper as is wanting in the weight; therefore these masses must be esteemed useless, and another made in its place in the same proportion.

When this is all finished, make with the hammer out of each of these small masses, a needle, making them a little hot; then engrave on each of these needles the number of half-ounces it contains, as before marked on its paper; that is, upon the first sixteen, upon the second fifteen, and so on; and then pierce them at one end, and running a silver wire through their eyes, collect them in order according to their different numbers. These are the silver touch-needles, made of the different alloys of silver and copper.

In Holland they make use of the mint mark, divided into grains, for the making of their needles. The first needle made of pure silver is said to be of twelve pennyweights. The second is made of eleven pennyweights, and eighteen grains, by the addition of six grains of copper. The third is made of eleven pennyweights and twelve grains, by the addition of twelve grains of copper; and so on, the proportion of silver decreasing always six grains, that is, one quarter of a pennyweight at a time, and that of the copper being always increased in the same proportion, till at last the weight of the silver is reduced to one pennyweight, and that of the copper increased to eleven pennyweights, which proportion constitutes the last needle.

It is needles, however, to go through the whole series of the needles, by so small progressions to the very last, for very delicate proportions cannot be very accurately distinguished in the operation.

**Touch-Needles. Gold.** These must be mixed either with silver alone, or with silver and copper variously intermixed. This mixture is called allowing or carating, and is determined with a mark divided into twenty-four carats, or weights of two-sixth parts of an ounce. There is nothing to be observed about the making of these needles, beside what has been already said in regard to the silver needles; except that the proportions of the weights are determined in another manner. These needles are made according to the following division and order; and they all weigh one mark.

The first is entirely of pure gold, or of 24 carats.

| 2 car. | 23 gr. | 6 gr. | 6 gr. |
| 3 car. | 23 gr. | 1 gr. | 1 gr. |
| 4 car. | 22 gr. | 6 gr. | 2 gr. |
| 5 car. | 21 gr. | 6 gr. | 3 gr. |
| 6 car. | 21 gr. | 6 gr. | 3 gr. |
| 7 car. | 20 gr. | 6 gr. | 4 gr. |
| 8 car. | 20 gr. | 6 gr. | 4 gr. |
| 9 car. | 19 gr. | 6 gr. | 5 gr. |
| 10 car. | 18 gr. | 6 gr. | 6 gr. |

The decrease goes on thus, by whole carats, till the weight of the gold is arrived at one carat, and that of the silver at twenty-three; for after the ninth needle, you cannot make so exact a distinction of the half-carats.

**N.B.** The carat is divided into twelve grains.

This mixture of the gold and silver is called the white alloy; but when copper together with silver enters into the mixture of the gold, then it is called a mixt alloy. The needles for trial of pieces thus debased, are made of mixtures analogous to the former, except only that those portions, which in the first case were pure silver, here consist of copper and silver mixt. Therefore you have a double series; for the mixture is either of two parts of silver and one of copper, or of two parts of copper and one of silver. For instance,

The first is of pure gold.

| 2 gr. | 23 car. | 6 gr. | 6 gr. |
| 3 gr. | 23 car. | 1 gr. | 1 gr. |
| 4 gr. | 22 car. | 6 gr. | 2 gr. |
| 5 gr. | 21 car. | 6 gr. | 3 gr. |
| 6 gr. | 21 car. | 6 gr. | 3 gr. |
| 7 gr. | 20 car. | 6 gr. | 4 gr. |
| 8 gr. | 20 car. | 6 gr. | 4 gr. |

If in this table you take pure copper instead of pure silver, and silver instead of copper, this gives you a third series of golden needles. And you may have a fourth by mixing with gold equal quantities of silver and copper in the same proportion. These alloys of gold are much in use, but workmen may easily employ a number of other variations, which, compared with those already mentioned, will be distinguished into a thousand different ways by an experienced person, so that it is neither possible, nor necessary to imitate them all.

But that these golden needles may not be too expensive, they may be made much shorter than those of silver, and afterwards folded to plates of copper, that may be sufficiently long for use.

The use of these needles is by means of the touch-flone; and arises hence, that every metal when pure must have its specific colour, that distinguishes it from the rest: but metals being the most opaque of all known bodies, the specific colour of every one appears most distinctly when you rub it against a very black hard flone; and if the colours of two or more metals are expressed by large lively spots, made near each other on the same plane, by rubbing them against the surface of the flone, you will by that means easily discern their difference, or their likenesses.

The flone adapted to this use, and called from its office the touch-flone, must have the following qualities. It must be of the deepest black, left the texture of the metal should be altered by furious rays of light shining among it: it must be capable of being pretty well polished, for when too rough, the colours of the metals rubbed against it cannot be clearly distinguished; and if it is too smooth, the metals are but faintly, and too slowly abraded or scraped by it, especially when gold is tried. It must also be neither too hard nor too soft. Tripoli, coal-dust, and tin-ashes, are used in rubbing off the thin metallic crusts, and in a short time the flone when very hard is apt to acquire too smooth a surface; and when it is too soft it easily wears, throws off a dust, and contracts furrows.

The flone is made in the form of a quadrangular prism, about an inch thick, and two or three inches long.

If the proper flone cannot be procured, moderately smooth pieces of flint are the best substitutes; and the more they approach in colour to the other the better. The
The method of using your needles and the touch is this: the piece of gold to be examined, being well cleaned in some convenient part of its surface, a stroke is to be made with it on the stone; and another, close by it, with such of the touch-needles as appear to come the nearest to it in colour. If the colour of any part of the stone, or of covering the bar or ingot with a thick coat of fine metal than the interior part, or of including malleous of bafe metal within it. A set of needles may be prepared, for this use, with silver alloy, in the series of the Chinese taches; or the needles of the European account may be easily accommodated to the Chinese, by means of a table formed for that purpose on the principles already explained. It may be observed, that the gold foines of China have a deprefion in the middle, from the shrinking of the metal in its cooling, with a number of circular rings, like those on the balls of the fingers, but larger: Dr. Lewis says, that when any other metallic mafs is included within, the fraud is discoverable at a fight, by the middle being elevated instead of deprefied, and the fides being uneven and knobby; but that the fame kind of fraud is sometimes practifed in the gold bars, where it is not discoverable by any external mark. See Cramer's Art of Allaying, p. 116, &c. Lewis's Com. of Arts, p. 122, &c. See also ASSAYING.

Touch-Stone, a black, smooth, glossy stone, used to try metals upon.

The ancients called it lapis Lydiae, the Lydian stone, from Lydia, a country of Asia Minor, whence it was brought. See Touch-Needles.

Touch-Stone, Izfib, called fasanus Hibernicus by Molyneux and some others, is a black stone, found in the county of Antrim, in that kingdom, in angular columns, forming that amazing pile called by the vulgar the Giant's Caufeway. See BANALTES and MARMARO-PROSERA.

The bafaltes being an excellent touch-stone, authors have confounded it with the touch-stone of the ancient Greeks, called by them bahanus, bafaltes, lapis Lydus or Helifas, &c. which were, probably, only black japhers; and they have derived bahanus and bafaltes from the fame Greek word, bahanus, to try or prove: but the bafaltes was not known to the Greeks, and Phin expressly tells us, that it is an Ethiopic or Egyptian name: whence it is probable that bafaltes is a corruption of the Hebrew word παυματί, hزان, which signifies iron, a very proper name for a stone, which they defcribe to be of the colour and hardness of iron. Many authors affirm, that the touch-stone is a kind of black marble, or that black marbles may serve for touch-stones: black marbles, it is true, take the colours of metals, and may be used as touch-stones in the ancient manner mentioned by Theophratus and Pliny; i.e. by touching them with needles of different alloys; which manner is still practiced in Germany and other countries; but in the manner of trying them with aqua fortis, it is absurd to use any caeleftris substances, as the acid will immediately destroy the fhalliance of the stone, and confequently affect and chmod that the strokes of the metals. For a good touch-stone, choice should be made of a black stone of the genus of marmaro-prosena, or of the jasper genus, on which the aqua fortis will only dilfolve the copper, filver, &c. without touching the gold, or affecting the stone. The firft genus should be preferred, as a nice touch-stone should only have a certain degree of polish, and should be of a compact fine texture, and neither too hard nor too foft; whereas the jasper are too hard, and do not fhow with fufficient exadnefs the different degrees of alloy; for the touches of the metal give them a higher fhine than their natural polish, and that fhine injures the diftinétnefs of the strokes made upon it. Cole's Hill. Poll. p. 264. See Touch-Needles.

TOUCH-NEEDLES.

The Chinefe are said to be extremely expert in the ufe of the touch-stone, fo as to diltinguish by it fo finall a difference in the finenes as half a touch, or a two hundredth part of the mixt. The touch-stone, fays Dr. Lewis, is the only tell by which they regulate the value of their gold to the European merchants; and in thofe countries it is infufet to fewer difficulties than among us, on account of the uniformity of the alloy, where there is almoft always filver; the lead appearance of copper being used in the alloy gives a fufpicion of fraud. An affay of the gold is rarely permitted in that commerce, it behoves the European trader to be well prac-

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TOUCH-WOOD, in Botany, a name given to spung or agaric of the oak, on account of its readily taking fire.

TOU-CHAN, in Geography, a city of China, of the second rank, in Koei-tecun; 987 miles S.S.W. of Peking. N. lat. 25° 40'. E. long. 109° 3'. Also, a lake of China, in Chao-tung; 52 miles in circumference; 15 miles S. of Tei-AGON.

TOU-CHANG-TAO, a small island near the coast of China. N. lat. 36° 55'. E. long. 121°.

TOUCHE, Claude Guismon do la, in Biography, a French poet, was born in 1719, and entered among the Jesuits; but a comedy, acted in 1748, occasioned his alienation from their fraternity. The flight of this body was refented by him in a pastoral epistle, published in 1766, and entitled "Les Soupirs du Cloître, ou le Triomphe du Fornitisme," in which he has exhibited the Jesuits in the blackest colours. Upon abandoning their society, he attached himself to the theatre; and in 1757 introduced on the stage his tragedy "Iphigenie en Tauride," the subject of which he borrowed from Euripides. This play, though chargeable with many defects, was well received, and has, retained its reputation. Whili he was preparing another tragedy on the story of Regulus, he fell a sacrifice to a pulmonic disorder in 1760. Among his MSS. was found his "Epitre à l'Amitié," which has been read with pleasure. Nouv. Dict. Hist.

TOUCHE, in Geography, a town of France, in the department of the Saône and Loire; 7 miles N.W. of Châlons sur Saône.

TOUCHING is sometimes used for the sense of feeling. This sense may be injured by any thing that obstructs the nervous influence, or prevents its being regularly conveyed to the organs of touching, as prehension, extreme cold, &c. also by too great a degree of sensibility, when the nerve is not sufficiently covered with the scurfy skin, or there is too great tension, or it is too delicate. Whatever disorders the functions of the brain and nerves, hurts the sense of touching; and as it proceeds from the same general causes, as palsy and apoplexy, it requires nearly the same method of treatment. In a defect of touching, which arises from an obtrusion of the cutaneous nerves, the patient must be first purged, and then such medicines as excite the action of the nerves or stimulate the systole may be used, for which purpose spirit of hartshorn, sal volatile oleum, horseradish, &c. may be taken inwardly; and the disordered parts often rubbed with fresh nettles or spirit of sal ammoniac.

Blistering plasters and snaphins applied to the parts will likewise be of use, as also warm bathing, especially in the natural hot baths.

TOUCHING, in Geometry. See TANGENT.

TOUCHING, in Sea Language, denotes the state of a ship's sails when they first begin to fliver, with their edges in the direction of the wind. It is either occasioned by a sudden alteration of the ship's course, or by a change of the wind, in which it blows more obliquely along the surface of the sails, instead of falling into their cavities from behind, according to its usual direction. Falconer. See FULL-AND-BY.

TOUCHING-AI, denotes the circumstance of stopping, or anchoring occasionally, at some intermediate port, in the course of a voyage.

TOUCHIROA, in Botany, formed by Aublet, out of the Caribbean appellation Montouchbraun, which belongs to an aromatic tree of Guiana. See CRUDIA.

TOUCQUES, in Geography, a sea-port town of France, in the department of the Calvados, taken by the English in 1427; 6 miles S.W. of Honfleur.

TOUCQUES, La, a river of France, which runs into the sea, about 8 miles N. from the town of Touques.

TOUCY, a town of France, in the department of the Yonne; 12 miles W.S.W. of Auxerre.

TOUDARGA, a town of Asiatic Turkey, in Natolia: 26 miles W.S.W. of Boli.

TOUDSONG, a town of Thibet; 92 miles S.S.W. of Laos. N. lat. 25° 6'. E. long. 96° 42'.

TOUJOUR, a town of Hindooftan, in the cire of Nagore; 40 miles S.W. of Nagore.

TOUJOU, in Rural Economy, a term used provincially in some districts to signify a measure of half a bushel. It is sometimes written tojeel in books on agriculture and rural economy.

TOU-FANS, in Geography. See Si-FANS.

TOUGITO-HOTOC, a town of Chinese Tartary. N. lat. 44° 48'. E. long. 116° 54'.

TOUING, a town of Croatia; 24 miles S.S.W. of Carilcalt.

TOUINTCHOSE, a Tartarian standard of Chinese Tartary. N. lat. 41° 40'. E. long. 115° 14'.

TOUJOO, a small island near the W. coast of Sumatra. N. lat. 6° 38'. E. long. 99° 25'.

TOUI-YUEN, a town of Corea; 50 miles N.E. of King-ki-tao.

TOU-KIE, a city of China, of the second rank, in Quang-fu; 1137 miles S.S.W. of Peking. N. lat. 13° 10'. E. long. 166° 45'.

TOUL, a town of France, and principal place of a district, in the department of the Meurthe, on the Meofelle, over which is a stone bridge, and regularly fortified. Before the revolution it was the principal town of a government, and the seat of a bishop. It was formerly imperial, and the bishop a prince of the empire, and suffragan of Treves. The Toulous, with the city of Toul, and the two bishoprics of Metz and Verdun, in the year 1552, put themselves under the protection of France; and, in 1648, became a part of that country; 12 miles W. of Nancy. N. lat. 48° 41'. E. long. 5° 59'.

TOULA, a river of Tartary, in that part inhabited by the Kalkas, and called Kalka-pira, which takes its course from E. to W., and is often broader, deeper, and more rapid than the Kerlon, another river of the same country, which runs from W. to E., and discharges itself into the lake Koulon-nor, the waters of which again flow into the river Saghalen by that of Ergone; and the banks of which afford the best pastures in Tartary. The banks of the Toul are covered with woods and beautiful meadows. The mountains which hang over it on the northern side are covered with fields of aged firs, and present to the view a kind of amphitheatre. This river, after having received the waters of the Selinoe, loses itself in the lake of Pai-cal, which is the largest lake in Tartary, and lies in the territories of the Mefcovites. The Russian are also masters of the lower part of the Selinoe, where they have built a small city called the Selingfelt.

TOULICIA, in Botany, from the Caribbean name of the same plant Toulicia. See PONZA.

TOULOMBA, in Geography, a town and fortresses of Hindooftan, in the fubah of Moulton, on the Rave. This town was taken and plundered by Timur Bec; 50 miles N.E. of Moulton. N. lat. 30° 59'. E. long. 72° 25'.

TOULON, a city and seaport of France, and capital of the department of the Var, strongly fortified. Before the revolution, it was the seat of a bishop, and, besides the cathedral
cathedral and other parish-churches, contained nine convents, a feminary, and a college. The old and new harbour lie contiguous, and, by means of a canal, communicate with one another, both having an outlet into the spacious outer harbour, which is naturally almost of a circular figure, and very large, being surrounded with hills. The entrance on both sides is defended by a fort, with strong batteries. The new harbour, which is a work of Louis XIV., is well defended by batteries, and round it stands the arsenal, where every man-of-war has its own particular forehouse, but the guns and cordage are laid up separately. In it are spacious working houses for blacksmiths, joiners, carpenters, locksmiths, &c. The rope-houle is built wholly of freestone, being 320 toises in length, with three arched walks, in which as many parties of rope-makers may work at the same time. The general magazine here, which supplies whatever may be wanting in the particular forehouses for single ships, contains an immense quantity of all kinds of laces, disposed in the greatest order and convenience. In the month of August, 1793, the people of Toulon, and the French vice-admiral Trugoff, entered into a negotiation with the English admiral lord Hood, who was then cruising in the Mediterranean, and he took possession both of the town and of the shipping, in the name of Louis XIV., and under the express and positive stipulation, that he was to afford in recompensing the confiscation of 1793. Great expectations were formed on this occasion; and general O'Hara was sent with troops from Gibraltar, being appointed, under the king of England's commission, governor and commander-in-chief: the republicans were not negligent in attempting to recover a place of so much consequence, and soon succeeded. General O'Hara was wounded, and taken prisoner, and the city and port abandoned. On the 19th of December, the town was bombarded from noon till ten o'clock in the evening; when the allies, and part of the inhabitants, having set fire to the town and shipping, precipitated their flight. Two chaloupes, filled with fugitives, were f Tom under the batteries. The precipitation with which the evacuation was effected, caused a great part of the ships and property to fall into the hands of the French, and was attended with the most melancholy consequences to the wretched inhabitants. Of thirty-one ships of the line, which the English found at Toulon, thirteen were left behind, nine were burned at Toulon, and one at Leghorn, and four lord Hood had previously sent away to the French ports, Brest and Rochefort, with 4000 republican frigates, whom he was afraid to trust; 7½ toises E. of Marseilles. N. lat. 43° 7'. E. long. 6° 13'.

TOULON, a township of New York, near lake Ontario. TOULON, a town of France, in the department of the Saône and Loire, near the Arroux river; 16 miles N.W. of Charolles. N. lat. 46° 41'. E. long. 4° 13'.

TOULOUSE, a town of France, and capital of the department of the Upper Garonne, on the Garonne. In the fifth century, it was the capital of the kingdom of the Goths. Before the revolution, it was the capital of Languedoc, fee of an archbishop, and second parliament of France; it is recognized for size next to Paris; its streets are most broad, and the houses are built of brick. The number of inhabitants, by a late enumeration, is said to be 50,171. Though so finely situated, its trade is incomparable, the principal article being Spanish wool. The university here was founded in 1228. The town-houle is a spacious building, and called the capitoul, whence the aldermen are termed capitouls; and amongst other curiosities preferred here, are fifteen large parchment folios, delicately written and illuminated, being annals of the city, commencing from the year 1288, and annually continued by the eldest capitoul. These were drawn up originally in Latin, but under Francis I. were altered to French. The three first volumes are principally filled with the portraits and names of the capitouls, and the following contain all the memorable events and transactions throughout the whole kingdom. Here is also an academy of the sciences and liberal arts. At half an hour's distance below the city, the celebrated canal of Languedoc joins the Garonne, which here becomes navigable. In this city are made carpets, but of little value; together with some flint, flax and woollen fluffs; 3½ toises S.E. of Bourdeaux. N. lat. 43° 33'. E. long. 1° 32'.

TOUM, a town of Syria; 6 miles N.E. of Damascus.

TOUMANJDI, a town of Afsiatic Turkey, in Natolia; 32 miles W. of Kiataja.

TOUMAN Daghb, a mountain of Natolia, part of the ancient Olympus; 20 miles S.E. of Burfa.

TOUMANUGREE, a town of Hindoostan, in the circuit of Kitchwaja; 12 miles S. of Budwar.

TOUMEN, a town of Chinefe Tartary; 68 miles E.N.E. of Peking. N. lat. 42° 27'. E. long. 128° 51'.—Alfo, a river of Corea, which rises lat. 43° 8', long. 127° 34', and runs into the sea of Japan, N. lat. 42° 30'. E. long. 120° 34'.

TOU MET, a Tartarian ftandard of Chinefe Tartary. N. lat. 41° 7'. E. long. 110° 49'.

TOUN, a town of Perfia, in the province of Khorsafan; 90 miles N.W. of Herat.

TOUNA, or Shik Abdallah, a fmall ifland of Egypt, in lake Mënaleh, on which are the ruins of an ancient town; 3 miles W. of Tennis.

TOUNATEA, in Botany, fomently arbitrarily conftucted by Aublet, out of the Guiana name Touou. See SWARTZIA.

TOUSE, in Geography, a river of Hindoostan, which frrses about 20 miles S.W. of Mahur, in the circuit of Gourah, and runs into the Ganges, about 20 miles below Allahabad.

TOVOMITA, in Botany, an untenable name, alterd by Aublet, from the Caribbean Poimania. Juftus has, wo perfume, according to his declared intention, afforded it merely a temporary adoption, till the genus is fully under-AB. With the fame view we here admit this name, for the present only.—Juff. Gen. 256. Aubl. Guian. 956. Poiret in Lamarck's Dict. v. 7. 717.—Clafs and order, Polyandria Monogynia. Nat. Ord. Guttiferæ, Juss. Gen. Ch. Cal. Perianth inferior, of two roundifi, con- cave leaves. Cor. Petals four, rather longer, ovate, acute, concave, equal, inferted into the receptacle of the flower. Stam. Filaments numerous, twenty to twenty-five, inferted into the fame receptacle, creft, linear, shorter than the corolla; anthers of two diffir oat ovate cells. Pith. German inferior, felle, ovate, with four furrows; style none; stigma euriform, in four depreffed, rounded lobes. Fruit unknown.


1. T. guianensis. Aubl. t. 364.—The only species, found in the inland forests of Guiana, flowering in September. This is a tree, whose trunk rises to the height of ten feet, and is a foot in diameter, with a branching head. The wood is compact and hard. Bark reddish, exuding drops of a yellow transparent resin. Leaves on the young branches only, opposite, stalked, smooth, three inches long, elliptical, pointed, entire; green above; whitish, with red parallel veins, beneath. Flowers in little terminal three-forked pa-

K 2
TOUPOUR, in Geography, a lake of Thibet, 27 miles in circumference; 10 miles N. of Souc.

TOUR, TURN, a French term, often used among English writers for a journey. Thus we say the tour of Paris, or Rome, &c.

TOUR, in Geography, a town of France, in the department of the Calvados; 3 miles W.N.W. of Bayeux.

TOUR, a town of France, in the department of the Puy-de-Dôme; 12 miles W. of Béziers.

TOUR la Blanche, a town of France, in the department of the Dordogne; 9 miles N. of Ribera.

TOUR de Cordova, a fort on the coast of France, in the department of the Gironde, at the mouth of the Garonne, whose summit is 300 feet above the level of the sea. N. lat. 44° 35'. W. long. 1° 4'.

Tour de France, La, a town of France, in the department of the Eastern Pyrénées; 12 miles W.N.W. of Perpignan.

Tour d'Aiguèze, La, a town of France, in the department of the Moutons of the Rhône; 12 miles N.N.E. of Apt.

Tour Landry, La, a town of France, in the department of the Mayne and Loire; 6 miles W. of Vichiers.

Tour de Prat, La, a town of Switzerland, in the Pays de Vaud, on the lake of Geneva; 1 mile S. of Veyaz.

Tour du Pin, La, a town of France, and principal place of a district, in the department of the Ifere, situated on a small river of the same name, which runs into the Rhône; 27 miles S.E. of Lyons. N. lat. 43° 34'. E. long. 5° 37'.

Tour de Rijel, a cape of the island of Jersey; 5 miles N.N.E. of St. Helier.

Tour de Rouffillon, La, a town of France, in the department of the Eastern Pyrénées, on the Tet; situated on a spot where once flowed a city called Rufeino, which was destroyed in the ninth century; 3 miles E. of Perpignan.

Tour de Genève, a town of Switzerland, in the canton of Fribourg; 2 miles N. of Gruyeres.

Tour la Ville, a town of France, in the department of the Channel, celebrated for its manufacture of glass; almost joining to Cherbourg.

TOURAME, before the revolution a province of France, bounded on the E. by Orleavois, on the S. by Berry and Poitou, on the W. by Anjou, and on the N. by Maine; about 60 miles in length, and 54 in breadth: the river Loire runs through it, and divides it into Higher and Lower Touraine. Tours is the capital. This province had formerly counts of its own. In the year 1044, it was taken by the counts of Anjou; in 1202, united with the crown; and in 1356, raised to a dukedom and peerage. It has frequently been granted to the royal children; and after the death of Francis, Duke of Alençon, brother to Henry III., was again united to the crown, since which it has never been alienated. It was governed by laws of its own, but with a right of appeal to the parliament of Paris.

TOURAK, a river of Turkey, Armenia, which runs into the Batoue; 20 miles E.N.E. of Ipira.

TOURAN, Kingdom of, an appellation given to the vast regions of Grand Tartary, extending from Russia to China, and from Siberia to the Caspian sea.

TOURACO, in Ornithology. See Cuculus.

TOURANCOURCHY, in Geography, a town of Hindoostan, in the Carnatic; 35 miles S.S.W. of Trichinopoly.

TOURCALL, a town of Hindoostan, in Bahar; 9 miles S. of Arrah.

TOURCHENGADA, a town of Hindoostan, in Baramaul; 18 miles N.W. of Namacul.

TOURETTE, a town of France, in the department of the Var; 3 miles N.W. of St. Paul.

TOURFAN Hotun, a town of Little Bucharia, and capital of a province; 180 miles W.W.N. of Hami. N. lat. 43° 33'. E. long. 107° 17'.

TOURINA, Cape, a cape of Spain, on the W. coast of Galicia. N. lat. 43° 3'. W. long. 9° 20'.

TOURMALINE, in Mineralogy, a stone sometimes used as a gem by jewellers, and particularly remarkable for exhibiting electricity by heat or friction. It almost always occurs in large prisms which are deeply friated. The common form of the crystal is a six-sided prism, terminated by three principal planes, which on one extremity are flat on the sides of the prism, and on the other on the edges. The
TOURMALINE.

The edges of the prism are frequently truncated, and thus form prisms with nine or twelve sides. The primitive form of the crystal, according to Hauy, is an obtuse rhomb. The fracture of tourmaline is perfectly conchoidal; the internal lustre is vitreous. It is harder than hornblende, but less hard than quartz; it scratches glass, and is brittle. The principal form of the crystal has been before stated; but the most common of the fourteen or fifteen different varieties, is the prism with nine sides terminated by five planes at one end, and by three at the other; or by seven planes at one end, and three at the other. The end which has the smallest number of planes exhibits negative electricity, and that which has the greatest number, positive. This difference in the form of the electric poles is a general law of all crystallized minerals that are electric by heat. Before the blowpipe, the tourmaline melts into a greyish-white porous enamel, but the red Siberian tourmaline is infusible. The constituent parts of tourmaline are given by Vauquelin and Klaproth as under.

According to Vauquelin:

<table>
<thead>
<tr>
<th>Green Tourmaline from Brazil</th>
<th>Violet Tourmaline from Siberia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>30</td>
</tr>
<tr>
<td>Alumine</td>
<td>39</td>
</tr>
<tr>
<td>Soda</td>
<td>35</td>
</tr>
<tr>
<td>Lime</td>
<td>3.84</td>
</tr>
<tr>
<td>Oxysd of iron</td>
<td>12.5</td>
</tr>
<tr>
<td>Oxysd of manganese</td>
<td>3</td>
</tr>
</tbody>
</table>

According to Klaproth:

<table>
<thead>
<tr>
<th>Red Tourmaline from Brazil</th>
<th>Black Tourmaline from Brazil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silex</td>
<td>45</td>
</tr>
<tr>
<td>Alumine</td>
<td>42</td>
</tr>
<tr>
<td>Soda</td>
<td>9</td>
</tr>
<tr>
<td>Oxysd of manganese</td>
<td>1.5</td>
</tr>
<tr>
<td>Oxysd of iron</td>
<td>0.1</td>
</tr>
<tr>
<td>Water</td>
<td>1.25</td>
</tr>
</tbody>
</table>

The tourmaline is a name given, as Dr. Watson has evinced, to the lycurium of the ancients. See Lycurium Lapis.

This stone is very common in several parts of the East Indies, particularly in the island of Ceylon, where it is called tournamal. Pliny mentions a red or purple stone which attracted light bodies. This is supposed to be the tourmaline. The first account of this stone, that occurs of late years, is in the History of the Royal Academy of Sciences at Paris for 1717, where we are told that M. Lemery exhibited an uncommon stone brought from Ceylon, which attracted and repelled small light bodies. Limnus, in his Flora Zeylanica, calls this stone lapsis electricus, and takes notice of Lemery’s experiments. M. Aepinus, having been informed of the attractive power of the tourmaline by Mr. Leechman, and furnished by him with two stones, made many experiments, the result of which was published in the History of the Academy of Sciences and Belles Lettres at Berlin, for 1756. The sublimity of his memoir is as follows: the tourmaline has, at the same time, a positive and a negative electricity; the one of its sides being in one state, and the other in the opposite; and this does not depend on the external form of the stone. These electricities he could excite in the strongest degree by plunging the stone in boiling water. The proper degree of heat for manifesting the electricity of the tourmaline, is from 106° Fahrenheit to 212°. If we raise the temperature above 212°, it loses its electricity, but regains it in cooling; but if we continue to raise the temperature, we arrive at a point in which the mineral again becomes electric, but has its poles reversed to what they were before. Hauy observed, that we may also change the position of the poles, by heating it unequally in the focus of a lens or mirror. If an electrified tourmaline be broken, the fragments immediately present electric poles, situated in the same direction as that of the large crystal.

If one side of the tourmaline be heated more than the other (as if it had lain upon a hot cake of metal), each of the sides acquires an electricity opposite to that which is natural to it; but if left to itself, it will return to its natural state.

If one of the sides of the tourmaline be rubbed, while the other is in contact with some conductor communicating with the ground; the rubbed side is always positive, and the other negative. If neither side be in contact with a conductor, both become positive. If, in the former of these cases, the tourmaline be rubbed so as to acquire a sufficient heat, and the side which is naturally positive be made negative, it will, upon cooling, return to its natural state; but if it has acquired no sensible heat, it will not return to its natural state while any kind of electricity remains. If it be heated, even when it is rubbed and insalated (in which case both sides become positive), it will still return to its natural state upon cooling.

The Duc de Noya, who, in 1758, procured two of these stones in Holland, and made a number of experiments with them, an account of which he published, mentions the experiments of M. Aepinus, but does not admit of a plus and minus electricity belonging to the tourmaline when heated. On the contrary, he lays that both the sides are electrified plus, but one of them more than the other. The tourmaline was introduced to the notice of the English philosophers by Dr. Heberden, who procured one (and, indeed, the only one known in England at that time) for Mr. Wilson, whose experiments confirmed the opinion of its positive and negative power, advanced by M. Aepinus. Dr. Franklin, likewise, in a letter to Dr. Heberden, in 1759, informs him of experiments on one of these stones, sufficient for establishing the fame theory. About this time Dr. Heberden procured some of these stones from Holland, and put them into the hands of Mr. Wilfon and Mr. Canton, gentlemen particularly conversant with the subject of electricity, and capable of using them with the greatest advantage to this branch of science. Mr. Wilson’s experiments and observations are very numerous; the result of which was, in the main, the fame with that of M. Aepinus, establishing the opinion of the two different powers of this stone; but he differs from him in afcertaining, that when the sides of the tourmaline are unequally heated, it exhibits that species of electricity which is natural to the hotter side; i.e. the tourmaline is plus on both sides, when the plus side is the hottest; and minus on both sides, when the minus side is the hottest. Both these gentlemen repeated their experiments, and each retained his own opinion; but Mr. Wilson’s apparatus was better calculated for the purpose of accurate experiments than that of M. Aepinus, and he used a greater variety of methods.
methods for communicating heat to his tourmaline. Mr. Wilfon imagined that this stone, as well as glafs, was permeable to the electric fluid, and that the refiftance to its entering the fubftance of it was lefs on what he calls the negative than on the positive fide; for rubbing the positive fide of the stone ftrongly, he found both fides electrified plus; by rubbing the negative fide in the fame manner, both fides were electrified plus, more ftrongly than before. Several experiments led Mr. Wilfon to conclude, that: the tourmaline refifted the exit and entrance of the electric fluid con-
diderably lefs than glafs, or even than amber; and he infers, upon the whole, that this stone differs in nothing from other electric bodies but in acquiring electricity by heat. Mr. Wilfon also conceived, that the tourmaline suffered the electric fluid to pafs through it only in one direction, hear-
ing in this refept fome analogy to the lead-line, and hav-
ing as it were two electric poles, which are not eafily de-
stroyed or altered. He also apprehended, that the electric fluid, flowing through all the ftones and gems which re-
feemble the tourmaline in their electrical properties, moves in that direction in which the grain happens to lie; the re-
ffistance, as he fuppofes, which the fluid meets with, being lefs in that direction than in any other.

Notwithstanding the attention given to this fubjeft by M. Aepinus and Mr. Wilfon, the moft important discovery relating to the electricity of the tourmaline was referred to Mr. Canton, who, in a paper read before the Royal Society in December 1759, obferves, that the tourmaline emits and absorbs the electric fluid only by the increase or diminution of its heat; for if the tourmaline, he fays, be placed upon a plain piece of heated glafs or metal, fo that each fide of it, by being perpendicular to the surface of the heated body, may be equally heated; it will while heating have the elec-
tricity of one of its fides poitive, and that of the other

negative. This will likewife be the cafe, when it is taken
out of boiling water, and fuffered to cool; but the fide
which was poitive while it was heating, will be negative
while it is cooling; and the fide which was negative will be
poitive.

In the Gentleman's Magazine for September 1759,
(vol. xxix. p. 434.) he publifhed the reffult of fome ex-
periments which he had made on a tourmaline procured from
Holland, in a feries of propofitions, comprifing the prin-
cipal part of what is known on this fubjeft. They are as fol-
follow: 1. When the tourmaline is not electrical or attrac-
tive, heating it, without friction, will make it fo; and the elec-
tricity of one fide of it (diftin guished by A) will be poitive, and that of the other fide (B) will be negative.

2. The tourmaline not being electrical, will become fo by
cooling; but with this difference, that the fide A will be
negative, and the fide B poitive. 3. If the tourmaline, in
a non-electrical flate, be heated, and fuffered to cool again,
without either of its fides being touched; A will be poitive
and B negative, during the whole time of the increafe and
decrene of its heat. 4. Either fide of the tourmaline will be
poitive by friction, and both may be fo made at the fame
time. He fuggfets that, if air be endanger with fimilar
properties, or be capable of becoming electrical by the in-
creafe or diminution of its heat (as is probable by attended
to its flate before and after a thunder-form), thunder-
clouds, both poitive and negative, as well as thunder-guffs,
may be eafily accounted for. Mr. Canton, with the tour-
maline which he received from Dr. Heberden, made other
and curious experiments, firft publifhed by Dr. Prifley.
He put one of them, which was of the common colour,
into the flame from a blowpipe, and burnt it white; when
he found that its electrical property was entirely destroyed.
'The electricity of another was only in part destroyed by fire.

He joined two others, made soft by fire, without destry-
ing their electrical property. The virtue of another was
improved by being melted at one end; and he found (con-
trary to what Mr. Wilfon had obferved of another tour-
maline, heated in the fame manner) that one tourmaline re-
tained its electrical property, after it had been frequently
made red-hot, and in that flate put into cold water. But
the molt curious experiment was made on a large irregular-
tourmaline, about half an inch long, which he cut into three
pieces; taking one part from the poitive and another from
the negative end. Trying these pieces separately, he found
the outer fide of the piece cut from the end that was nega-
tive when cooling, was likewise negative when cooling;
and that the outer fide of that piece which was cut from
the end that was poitive when cooling, was likewise poitive
when cooling; the opposite fides of both pieces being,
according to the general law of the electricity of the tour-
maline, in a contrary flate. The middle part of the fame
stone was aftened as it had been when it was entire; the
poitive end remaining poitive, and the negative end

negative.

Dr. Prifley, about the clofe of the year 1766, directed
his attention to the tourmaline: being in polleffion of Dr.
Heberden's large polished one, which weighed one hundred
and twenty grains, of an oval form, plane on one fide and
convex on the other, and which had pafied through the
hands of Mr. Wilfon and Mr. Canton, he purfued his in-
vestigation of the properties of this ftone in a variety of
experiments. Several of them were undertaken with a view of
determining, whether the tourmaline collected its electricity
from the neighbouring air: he was led to this conjec-
ture from the confequences of Mr. Wilke's experiments
on the production of fpontaneous electricity, by melting
one fubftance within another; and his experiments feem to
prove that his conjecture was juft. He also difcovered a
method of reverting all the experiments made upon the
tourmaline, making that fide which is poitive in heating or
cooling to be negative; and that which is negative to be
poitive; fo that the kind of electricity fhall be juft what
the operator fhall direft, by the application of proper fub-
fiances to the ftone. Dr. Prifley not only tried how
the tourmaline would be affected by being heated or cooled in
contact with various fubstances, to which only one of its
fides was expofed at once, but he also made other exper-
iments, in which the ftone was entirely furrounded by them.
Having covered the ftone to the thicknefs of about a crown
piece with fealing-wax, he found it to act nearly, if not quite
as well, through this coating of wax, as if it had been
expofed to the air: hence, if a tourmaline be concealed in a
flick of fealing-wax, the wax will feem to have acquired
the properties of the tourmaline. See on this article Phil.
&c. Franklin's Letters, &c. p. 376. Prifley's Elec-

The tourmaline, according to Mr. Kirwan, is a fihacious
earth, imperfeetly united with from 1.05 to 1.47 of its
weight of argil, from 0.3 to 0.4 of its weight of mild cal-
careous earth, and from 0.15 to 0.243 of its weight of iron.
This ftone has been found in Ceylon, Brazil, and the Tyrol: a fpecimen of each has been examined by Mr. Bergman; that of Ceylon is of a dark-brown or yellowish colour; its specific gravity 3.065 or 3.205: that of Brazil is green, blue, red, or yellow, and its specific gravity 3.07 or 3.18: that of the Tyrol, by re-
flected light, is of a blackish-brown, but by refracted light,
yellowish, or in thin pieces, green; its specific gravity 3.05.
In fire, none of them decrcepte: but thofe of Ceylon and
TOURNE-COUE-EN-BIGORRE, a town of France, in the department of the Gers; 9 miles S.E. of Tarbes.

TOURNEFORT, Joseph Pitton de, in Biography, the great leader of the French school of botany, of whom we have spoken (see Rivinus) as one of the three most distinguished didactic writers of the age preceding Linnaeus, was born of a gentleman's family at Aix, in Provence, June 5th, 1656. His mother, Ademara Fagouit, was of a Parian family, likewise in the French fæd, noble. Being destined by his parents for the church, he was educated at the Jesuits' college of his native town; but he soon imbibed a taste for natural knowledge, which led him at the age of 21, on the death of his father, to change his original determination, for the profession of physic. This latter indeed was but subvenient to a most ardent devotion for botanical science, which ever after made the object and the happiness of his life. Not that his education, in other respects, was neglected; for he proved a good scholar, well grounded in the studies necessary to his medical profession, particularly anatomy and chemistry, and no less versed in historical and critical knowledge; infomuch that he became an elegant writer and lecturer, as happy in his powers of communicating, as of acquiring, information. His personal character, manners, and address were also such as to prove a general recommendation in his favour through life.

Having soon exhausted the botanical richness of a physic-garden at Aix, and of the circumjacent fields, he extended his researches to the neighbouring Alps, and afterwards to the Pyrenees, where his hardy frame of body, and his observing enterprising mind, rendered easy to him the acquisition of the principal vegetable flowers of those romantic and fertile regions. Even the thistles and laurel-like, which often infest the borders of kingdoms, and which then abounded in the Pyrenean fastnesses, were fearedly formidable to a traveller, whose only riches were dried plants, and whose oftentimes provision for his journey consisted of a little black bread, in which he concealed his money. The intermediate winters between his several visits to Dauphiny, Savoy, Catalonia, the Pyrenees, &c.

The red-colored tourmaline from Siberia is regarded by some mineralogists as a distinct species; it differs from other tourmalines in being infusible: it has been denominated rubellite, (which sec.) The indigo-blue variety of tourmaline has been called by Karrlein and Dendrado an indicolite. The tourmaline occurs imbedded in gneis, mica-slate, talcous slate, and talc. It is sometimes found in granite. It is found in rolled pieces in alluvial ground: it was first discovered in the island of Ceylon in the 16th century. It has since been found in various Alpine districts of Europe and Asia, in the island of Madagascar, and in North and South America.

The tourmaline may be distinguished from common fchol by its colour; the latter is always black. The fracture in common fchol is small-grained and uneven, that of tourmaline conchoidal. The opacity of common fchol is always greater than that of tourmaline. It differs from common and basaltic hornblende in its structure, that of the latter being distinctly foliated. The following names have been given to different varieties of tourmaline.

Green tourmaline named Brazilian emerald
Berlin blue - - - Brazilian sapphire.
Indigo-blue - - - Indicolite.
Honey-yellow - - - Peridot of Ceylon.
Red - - - Rubellite, siberite, and tourmaline ayyre.

In the Memoirs of the Royal Academy of Sciences at Berlin for 1780, we have the following directions by Mr. Maergraf, for forming a composition similar to the tourmaline. Take magnesia, or that earth which is the basis of the frag: catharticus amarus; mix it with chalk, which has been diffused in spirit of nitre, and precipitated from thence by a solution of salt of tartar, and then well edulcorated; add to this mixture equal quantities of flint and clay (taking a scruple of each of the four ingredients), and four grains of the precipitate of sublimate of fusible spar, or what is here called the flour crude, i. e. the earth, which is not only fusible from the flour or Derbyshire spar, on heating it with oil of vitriol, but may also be precipitated from thence, and from the acid liquor in the receiver, by the addition of a solution of salt of tartar.

To two drachms of the above mixture add five grains of corpus maris, calcined according to the method of Kueckel, during four months, in a glafs-house furnace, and the refult will be the formation of a vitreous stone, similar to the tourmaline.

TOURMENTINE, in Geography, a town of France, in the department of the Maine et Loire; 6 miles N. N. E. of Chollet.

TOURN, in Loire. See TURN.

TOURNAMENT. See TURNAMENT.

TOURNAN, in Geography, a town of France, in the department of the Seine and Marne; 13 miles N. of Melun.

TOURNAY, a city of France, in the department of Jemappel, on the Scheld, confidered as the most ancient town of Belgie Gaul, being founded 620 years B.C., and anciantly the capital of the Nervii. It was lately the capital of a district to which it gave name, and the fee of a bishop, erected in the 5th century. This city has often been taken and laid waste in the different wars between the French, English, and Flemings. By the peace of Aix-la-Chapelle it was ceded to France, and made one of the best fortified towns in Flanders. In 1709, prince Eugene and the duke of Marlborough invested Tournaï, and besieged it in form. The town capitulated, being in want of provisions. The citadel held out till the 30th of September, when the garrison surrendered prisoners of war. By the peace of Utrecht, in the year 1713, the States-General remained masters of the military, and the emperor of the civil government. In 1745, after the battle of Fontenoy, it was taken by the French, but ceded to the Austrians, by the peace of Aix-la-Chapelle, in 1748. The late emperor Joseph ordered the fortifications to be destroyed. In 1792 an action took place between the Austrians and the French near Tournaï, in which M. Dillot commanded the latter; and being fuppected of treachery, was murdered at Lille by the soldiers. On the 10th of May, 1794, the duke of York was assailed near Tournaï by the republican forces, in different columns, to the amount of 30,000 men; but they were compelled to retreat. In 1794, on the general evacuation of Flanders by the allies, the French entered Tournaï, where they found 20 guns spiked, 10,000 musket-balls, a large quantity of gunpowder, several magazines, and 14 barges laden with ammunition; 3 posts E. of Lille. N. lat. 50° 31'. E. long. 3° 25'.

TOURNAY, a town of France, in the department of the Pyrenees; 9 miles S.E. of Tarbes.

TOURNAY, in French, an alluvial place, and district, of the department of the Gers; 9 miles S.E. of Tarbes.

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TOURNEFORT.

were spent in the university of Montpellier, where he first entered in 1679; but he is said to have taken his doctor’s degree at Orange. At Montpellier he enjoyed the intimacy of the excellent Magnol, of whom we have given an account in his proper place, and to whom the long-established botanical fame of that university is chiefly owing. Yet this able man narrowly escaped being hunted from his seat; as his no less eminent successor, professor Decandolle, has lately, in 1816, been, because he was a Protestant; nor could the appointment of his king protect the latter from that king’s wrath enemies. Tournefort was in no danger of this kind. He was nevertheless a liberal Catholic, whose frequent animadversions on the depraved superfluities that occurred in his travels, prove him to have been by no means the slave of any church or priesthood.

The merits of Tournefort, as a botanist, soon became conspicuous at Paris, and, aided by a fortunate introduction, procured him the ecapital favour of professor Fagon, then chief physician to the queen, (see FAGONIA,) who re-signed in his favour the superintendence of the royal garden. In this school he was soon attended by a numerous throng of students, eager to follow him in his herbarizations round Paris, and to profit by his practical remarks. We have already, in our account of WILLIAM SHERARD, mentioned that illustrious botanist as among his adulatory pupils. The subject of our memoir now became devious of further examining the productions of other countries than his own, in their native situations. For this purpose he travelled in 1688 to Spain and Portugal, afterwards into Holland and England; enriching by these means his own collection of dried plants, as well as the living collections of the Parian garden, and procuring the acquaintance and correspondence of all the most eminent cultivators of the science in which he excelled. Hence the great herbarium of Sherard became supplied with all Tournefort’s acquisitions, not only at that time, but after his subsequent voyage to the East, the fruits of which were transmitted to England with more particular care and exactness, than perhaps to any other country, as appears by what are still preferred at Oxford. The rudics and labours of Tournefort were facilitated and encouraged by a royal pension, which could certainly not come under the opprobrious denomination of a sinecure. In 1692 he became a member of the Academy of Sciences, and in 1694 published in French his Elements de Botanique, making three octavo volumes, dedicated to Louis XIV.—This was but a prelude to his immortal work, the Institutiones Rei Herbariae, of which the first edition, in three quarto volumes, with 476 plates, appeared in 1700. The second, which, with a reference to the “Elements,” is called the third, was published by Anthony de Jullien, at Lyons, in 1719, with the Carovalarium, composed of the author’s Oriental discoveries. In 1698, when he was admitted a member of the Medical Faculty at Paris, he published a little duodecimo volume, Histoire des Plantes qui naissent aux Environs de Paris, afterwards translated by professor Martyn into English. The reputed virtues of the plants are subjoined to their synonyms and descriptions. The arrangement is alphabetical, the style defunct, nor is this one of the best books of its kind.

We know not what period Tournefort received the order of St. Michael, but that he was decorated therewith appears by his portrait, published by Dr. Thornton, from an original picture; and the circumstance is alluded to by Haller, Bibl. Bot. v. 2, 3.

At the earnest recommendation of his friend Fagon, Tournefort was dispatched, under royal patronage, on a voyage to the Levant, the avowed object of which was to investigate the plants of ancient writers, as well as to make new discoveries. He was accompanied by a German physician, named Andrew Gundelfinger, (see GUNDERIA, and Claude Aubriet, one of the most exquisite botanical painters that the world ever saw. These travellers left Paris on the 9th of March, 1700, and embarking at Marseilles the 24th of April, anchored nine days afterwards in Crete. The investigation of the Archipelago, Greece, the shores of the Euxine, the countries of Bithynia, Cappadocia, Iberia, Armenia, Georgia, Galatia, Lydia, &c; occupied two years, and our adventurers returned in safety to Marseilles, on the 3d of June, 1702. Tournefort’s account of this expedition, written in French, and published soon after his death, is one of the most agreeable, intelligent, and valuable books of travels extant. De Thiés justly regrets the confines of the Abbaye Seltini, that it is written with the furia francese, or rage for every thing French. To the mode of its composition indeed something may be objected. The work is addressed, in the form of letters, to the comte de Pontchartrain, secretary of state, &c. &c; and as the etiquette of the French court required that fo illustrious a personage should of course be endowed with all human erudition and knowledge, the writer is obliged to treat him accordingly. We are therefore told nothing without the impertinence of “vous sçavez Monseigneur”; except perhaps the harmless description of a new plant, in writing which the author’s love of science made him flip, for a moment, the collar of patronage. The reader indeed soon forgets every thing but the delightful company of the narrator, who takes us along with him to every spot; details with equal intelligence the manners, drestes, and information of the people he visits; or carries us into the profoundest researches of ancient history and geography; tracing the fate of empires, countries, and cities, with the fame grace and facility with which he makes us enamoured with a new plant, or exposes the impostures or the ignorance of empirics of the soul or body. This work is illustrated with a very large number of plates, of which the botanical ones are peculiarly excellent. We have a good English edition, and Haller mentions one in Dutch. The curious grotto of Antiparos afforded the author an opportunity of detailing his favourite theory of the vegetation of stones, which is now refuted by more accurate chemical enquiries. (See STONES.) His travels were to have extended into Africa, but the plague raging in Egypt, he returned home directly from Smyrna. On arriving at Paris, it was his design to have turned to advantage the connections and reputation he had acquired, by devoting himself to the practice of physic. But whatever prospect he might formerly have had of success in this line, was defeated by his long absence; nor did the duties of his botanical appointments leave him sufficient leisure to court or to pursue his more lucrative profession. His time however was incessantly occupied; and the preparation of his Voyage du Levant for publication, which, considering the books necessary to be consulted, was no light or speedy task, led him too often to encroach on the night, after the superabundant labours of the day. His health became impaired, but this could not relax his ardour. His fate however was precipitated by the accident of a carriage in the street, which crushed his breast, and even threatened him with instant death, from which he was rescued by the exertions of a friend near at hand. He languished for a few months only after this event, and died December 28, 1708, in the fifty-third year of his age. We find no mention of his place of burial, nor of any monument erected to his memory. He was never married. He left his collection of plants to the king, who bestowed a pension of a thousand
thousand lives on his nephew, as an avowed return for this legacy, and a testimonio of royal ejectment for the deceased. The first volume only of his Voyage was printed at the time of its author's death. A second edition appeared at Amsterdam in 1716, to which are prefixed the elogies of Tournefort, delivered by Fontenelle to the Academy of Sciences, April 16, 1700; and a more ample composition of the famous kind by Lauthier, in a letter to M. Begon, the patron of Plumier, and the friend of Tournefort. This last account, in particular, is written with the affection and respect of a person intimately acquainted with the private character, as well as public merits, of the subject of his narrative. Tournefort is described by him as of the most simple though engaging manners, devoid alike of ostentation and of jealousy, as amiable and exemplary in private life, as he was zealous and exact to fulfill his public duties. Besides his knowledge of Latin and Greek, he was versed in the Italian and Spanish languages. The abundant riches of his mind were readily communicated, with clearness and facility, but without parade, in his conversation as well as in his lectures.

Of the principal works of this eminent man, we have already spoken, and shall not now offer any remarks upon his merits as a systematic botanist. He is said to have left several works in manuscript. One of these was entitled Topographie Botanique, containing the precise places of growth of the plants collected by himself in the south of France, as well as in Spain and Portugal, between the years 1676 and 1690. He also composed an universal critical history of plants, in alphabetical order, under the title of Plantarum Adversaria, in which the remarks of preceding writers were collected and compared, and his own opinions subjoined. The Schola Botanica a catalogue of the Paris garden, we have already mentioned in the biographical article of William Sherard. M. Laauthier removes all doubt respecting the real author of that little volume, by informing us he had seen a copy, with manuscript additions and corrections in Tournefort's own hand, where Sherard was named as the writer of the book.

Tournefort was led, by the philosophy of his time, to search for the medical qualities of plants by a chemical analysis. On this subject he is recorded to have left a volume of manuscripts. That it has never been published is no loss to the world; the work of Geoffroy, undertaken, and laboriously accomplished, with the same view, having proved that no real knowledge is to be acquired by this means, and having therefore let the question for ever at rest. Our readers will find the principles of Tournefort's system of botanical arrangement, under the article Classification. According to this, his Institutiones Rei Herbariae are divided; and the same system was adopted by several compilers of local Floras, or of garden Catalogues, in the early part of the eighteenth century. Even Linnaeus's earliest work, entitled Spolia Botanica, sive Plantae Rariores per Scandiam, Scotorum &c. Officinum observata & enumerata, the unpublished manuscript of which, dated Upal, 1729, and illustrated with drawings, is now before us, is claffed after Tournefort's method. Nor did any great difficulties attend the application of that method to any tribes of plants with which its author had been conversant. But when the productions of new continents came to be examined, it necessarily fell short; as we have remarked in the biographical article of Dr. Alexander Garden. No system of botanical classification, except the artificial sexual one of Linnaeus, has ever proved universally applicable to the vegetables of all countries, because no other depends on parts essential to the very being of every plant.

Tournefort's method, however, by its apparent facility,
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left undone, he is the father of the French school of botany, and the traces of his principles, either confirmed, improved, or superceded by the labours of other teachers, are confluence in the works of his distinguished followers, Vaillant, Lamarek, and the Julliens. With the feelings of the first of these, as Vaillant could not but be sensible that, in some important points, he had the advantage of his great predecessor, somewhat of conscious superiority, not inconsistent with jealousy, was often intermixed, and too often betrayed. But the others, living at too remote a period from their idol to consider him otherwise than as the glory of their country, have made him ample amends in identifying his fame with that of France itself. The most valuable improvements, not only in classification, but in nomenclature, were, for a long time, not permitted to encroach even on the negligences or errors of Tournefort. The national spirit of the French still renders this libelous principle sacred. The homage long given to Tournefort is now transferred to Jullien. The term of lézé-nature is applied to the Linnaean system, as if his own were entirely a natural one, and as if what the great Swedish botanist modestly called fragments of a natural scheme of arrangement, were not, in fact, the basis of the best part of Jullien's. The mixture of these exclusive partialities is, that the really valuable improvements in science, which originate in other schools, are too much neglected by the pupils of the Parian one. In clear discrimination, and concise definition, in lucid order, elegant and classical terminology and nomenclature, in judicious combination, as opposed to futilidus and indiscriminate distinction, they generally, and sometimes very remarkably, fail. If any of them should deign to peruse this criticism, may they disfavor it by correcting the imperfections to which it alludes! Rivalship in science or philosophy ought only to lead to mutual improvement; for he who will learn nothing from an adversary, does but render apparent one indefeasible cause of his own imperfections. Tournefort's Works. Hall. Bibl. Bot. S.

TOURNEFORTIA, in Botany, bears that name in commemoration of the great French botanist, of whom we have given an account in the preceding article. This genus, founded by Plumier, was called by him Pittonia, after the family name of the person commemorated. Linnaeus altered it, according to his own rule, of retaining the appellation by which that person was most known. So he preferred Hippocrates to the Coa of Plumier, and Theophrastus to his Erasistr. French writers have subsequently acceded to this decision.—Linn. Gen. 78. Schreb. 104. Willd. Sp. Pl. v. 1. 791. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 1. 303. Brown Prod. Nov. Holl. v. 1. 496. Jull. 129. Lamareck Illust. t. 95. Poiret in Lam. Dict. v. 2. 355. Gaertn. t. 76. (Pittonia; Plum. Gen. 5. t. 3.)—Clafs and order, Penentoria Monogynia. Nat. Ord. Allegroficea, Linn. Boraginee, Jull.

Gen. Ch. Cal. Perianth inferior, of one leaf, small, in five deep, awl-shaped, permanent segments. Cor. of one petal, funnel-shaped; tube cylindrical, globose at the bottom; limb spreading, divided half way down into five pointed, horizontal segments. Stam. Filaments five, awl-shaped, in the throat of the corolla; anthers simple, within the orifice of the tube, converging, pointed. Pfi. German superior, globule; style simple, the length of the flammes, club-shaped; stigma bare, unlobate. Pet. Berry globose, of two cells, perforated by two pores at the summit. Seeds four, nearly ovate, separated by pulp.


A tropical genus of erect or twining shrubs, with simple, undivided, alternate, rough, hairy, or silky, rarely smooth, leaves. The flowers are numerous, mossy white or blueish, in dense, recurved, unilateral, often cymose, spikes, without bracteas. Berries white, blue, or black. In habit, this genus comes nearest to Heliotropium; Messerschmidia is united to it by Mr. Brown. (See those articles.) In the true Tournefortia, according to that learned botanist, the berry has only two seeds, or nuts, each with two cells. To these belong the Messerschmidia, and Heliotropium graphiades of Linnaeus. In T. birsiflifiora, the berry has four simple, or single-kernelled, seeds, and a straight embryo. In T. volubilis of Linnaeus, and scandens of Solander, to which we may add ferecia of Vahl, the segments of the corolla are awl-shaped, the berry with four simple seeds, of which two or three are often abortive, and a curved embryo. Mr. Brown would separate all these from Tournefortia, but whether the birsiflifiora should form a distinct genus from the species with awl-shaped segments of the corolla, he is doubtful. A consideration of the genera Onosina and Cerintus, to say nothing of others of this same order, makes us doubtful whether the number of parts, or cells, in the fruit, or rather the greater or less union of those parts, can here make a generic distinction. We submit it to the re-consideration of our learned friend; and in the meanwhile we shall attempt a display of all the species of Tournefortia, of which Linnaeus and Willdenow have given but a very incomplete list. Poiret in Lamareck's Dict. has added several to the number, but we pollexes some, even from Cosmmeron's collection, which are not to be referred to any of his. Some of the described ones have not come under our inspection, and the history of others is much confused, but we hope to leave the subject, if not fully elucidated, at least in a clearer state than we find it.—T. humilis, Linn. Sp. Pl. 202, belongs, according to Mr. Brown, to Heliotropium. See that article.

1. T. ferrata. Greater Serrated Tournefortia. Linn. Sp. Pl. 201. Willd. n. 1. (Pittonia arborescens, chamedrifolia major; Plum. l. 224. t. 228. f. 1.) Varronia mirabiloides; Poiret in Lam. Dict. v. 4. 262.)—Leaves ovate, serrated, on spineous footstalks. Spikes recurved, on axillary stalks, longer than the leaves.—Native of the West Indies, where it was found by Plumier, from whose figure alone it is known to us. The stem is said to be arborescent, with round zigzag branches. Leaves above two inches long, strongly serrated, on stalks nearly an inch in length, each with a joint about the middle, where the leaf seems finally to separate, the lower part hardening into a spine. Flower/stalks axillary, foliary, each bearing three recurved spikes, of numerous, large fleshy flowers, the limb of whose corolla is undulated, an inch in diameter. Berry the size of a pea, globose, undivided. Poiret says it is red. If his plant from Hispaniola be the same, this species must be removed to Varronia, which is rendered probable by the aspect of its corolla.

2. T. chamedrifolia. Lesser Serrated Tournefortia—(T. ferrata b; Linn. Sp. Pl. 201. Willd. n. 1. Pittonia arborescens, chamedrifolia minor; Plum. l. 224. t. 228. f. 2.)—Leaves oblong, serrated, on recurved spineous footstalks. Spikes capitate, terminal.—For this also our only authority is Plumier, who gathered it in some part of the West Indies. It appears to differ essentially from the former, in the characters above given, as well as in its much smaller spikes. The flowers however are nearly as large, but much fewer, with partial stalks, which become very conspicuous as the fruit ripens. Their corolla is represented very regularly crested, rather than undulated, but indicates a Varronia, as well as that of the foregoing.

3. T.
TOURENFORTIA.

3. T. hispiflolia. Hairy Tournefortia. Linn. Sp. Pl. 201. Willd. n. 2. Poiret n. 1. Swartz Obs. 56. (Pittonia hispiflolia et ramosiflolia, baccis albis; Plum. Ic. 226. t. 228. Heliotropio flore, frutex baccafer racemosus, folio rugoso fetido maximo subrotundo hifuro, frutet albo; Slane Jam. v. 2. 185. t. 212. f. 1.)—Native of bushy places in Jamaica, and other West Indian islands, as well as of Mexico, from whence it was first met with by Muts to Linn. This is a herb, three or four feet high, somewhat twining, its branches, flalks, foliage, and calyx clothed with dull down. The corolla is still more densely covered externally with silky hairs. Leaves frettb, fettb, elliptic, entire, pointed at each end, transversally ribbed, three inches long, and an inch and half broad; most hairy, and rather fettb, at the back. Spikes aggregate, on long, hairy, auxiliary and terminal flalks, about the ends of the branches. Flowers, as well as berries, white; the latter rough and hairy, Swartz says of two cells, with two seeds in each, which does not agree with Mr. Brown's account, given above.

4. T. satifliflora. Tobacco-leaved Tournefortia. Linn. Sp. Pl. 201. Willd. n. 5. Att. n. 2. Swartz Obs. 58. (Pittonia racemofa, nicotiana folis, fetidiflora; Plum. Ic. 226. t. 230.)—Leaves ovato-lanceolate, rough; downy and paler beneath. Flower-flalks branched. Spikes pendulous. Calyx shorter than the fytles. —Native of Jamaica. Dr. Wright. The leaves vary in size; but are not unlike those of T. hispiflolia in shape. Their upper surface is more minutely rough than that in its species, and their under one more softly and densely downy. The fytles are very remarkable for their extremely long linear form, and pendulous position. They measure frequently eight or ten inches, and are from six to eight on each auxiliary fettb leaf. The flowers are small, fettb, in a simple unifoliate line. Calyx hairy, with lanceolate upright segments. Tube of the corolla hairy upwards, about thrice as long as the calyx; its limb in five ovate, obtuse, keeled, reflected segments. Style projecting beyond the permanent calyx, after the corolla is fallen, with a very large pulpy-shaped pointed stigma. This is united, by Lamareck and Poiret, to the following, under the name of macrophylla; Poiret n. 21. 5. T. campylata. Drooping Cymose Tournefortia. Linn. Sp. Pl. 202. Willd. n. 8. Att. n. 4. Jacq. Coll. v. 1. 96. Ic. t. 91. (Heliotropio flore, frutex, folio maximo oblongo acuminato glabro; Slane Jam. v. 2. 185. t. 212. f. 2.)—Leaves elliptic-lanceolate, pointed, smooth. Flower-flalks much branched. Spikes drooping. Calyx as long as the fytles. —Native of the West Indies. This is certainly, as Linnæus observes, nearly related to the foregoing, but differs in the smoothest, and more elongated points, of the leaves, as well as in its more numerous, shorter, and less directly pendulous, fytles. The flowers are similar, but the fytles in our specimens does not project beyond the calyx. The corolla, at first white, turns tawny, and dark red, before it falls. Berry the fize of a small pea, white, with black dots.

6. T. fringifolia. Lilac-leaved Tournefortia. Vahl Symb. v. 2. 23. Willd. n. 4. Poiret n. 17.—Leaves ovate, somewhat heart-shaped, pointed, smooth. Spikes terminal, divaricated, hairy, as well as the flalks.—Native of Cayenne, and, if we mistake not, of Jamaica, where our specimen, perfectly answering to Vahl's description, was gathered by Dr. Wright. The young branches, as well as the flower-flalks, the main rib of the leaves on both fides, and the transverse ribs underneath, are all more or less hairy, like the flower-flalks, spikes, calyx, and outside of the corolla. Leaves two inches long, dilute of fine intermediate veins, quite smooth, except the ribs. Flower-flalk terminal, erect, forked, with spreading spike above an inch long. Flowers alternate. Segments of the corolla with long taper points.

7. T. bicolor. Pale-backed Tournefortia. Swartz Ind. Occ. v. i. 344. Willd. n. 7. (T. leviigata; Poiret n. 3.)—Leaves elliptical, pointed, smooth; slightly rugged on the upper side. Spikes terminal, cymose, crowded, erect, recurved, somewhat hairy.—Native of bushy places in Jamaica. A herb fix feet high, with smooth branches. Leaves three or four inches long, elliptical rather than ovate, acute at each end, finely reticulated with veins between the ribs, occasionally minutely hairy, as well as the branches and flower-flalks; paler beneath. Flower-flalks several, terminal, alternate, rather hairy, erect, each bearing six or eight sub-divided, cymose, dense spikes. Segments of the calyx ovate, scarcely hairy, except when the leaves are fo. Corolla greenish-white, externally covered with silky hairs. T. globular. Linn. Sp. Pl. cd. i. 144, is perhaps a variety of this.

8. T. madagascariensis. Four-dotted Tournefortia. Jacq. Amer. 47. Poiret n. 4.—Leaves ovate, pointed, smooth on both fides. Spikes much branched, pendulous, lax, recurved. Stalks slightly hairy.—Native of thickets in South America. Jacquin found it near Carthagena. He describes it as a fluris, with weak branches. Leaves fettb, entire, crenated. Berries yellow, with four round black dots at the base. Poiret says the leaves are at least four inches long, and two broad. Corolla yellow, with a long narrow tube, and five acute segments.


10. T. farinifera. Trailing Tournefortia. Poiret n. 5.—"Leaves ovate-oblong, acute. Spikes branched, very short, two-ranked. Stem twining."—Native of the Mauritius. Sonnerat. A specimen gathered by Commerson in the Philippine islands, answers very near to the following description of Poiret. The flalks are climbing, with long, digitate, trailing shoots, flaited, nearly cylindrical, clothed with short whitish hairs. Leaves alternate; downy, and whitish beneath, especially when young; rounded and dilated at the base; almost smooth on the upper surface; three or four inches long, and an inch and half wide. Flower-flalks short, very downy. Flowers terminal, in short, clock, branched, downy spikes, and disposed in two rows, fettb. Calyx short, with blunt segments.

11. T. brasiliensis. Brasil Tournefortia. Poiret n. 6.—"Leaves ovato-lanceolate, harsh, somewhat fatinated; whitish beneath. Stem round, acutely flaited."—Sent to Lamareck from Brazil. Allied to the last, but the leaves are of a different shape, and the whole plant nearly defifite of pubescence. Leaves two or three inches long, an inch or more in breadth, contracted at the base, hairy on both sides, whitish and downy beneath when young. Flowers in short, reflexed, downy, hoary, branched spikes, composing a terminal cyme. Segments of the calyx downy, very acute, slightly recurved. Poiret.

12. T. arboreafera. Arboreferent Tournefortia. Poiret n. 7.—"Leaves ovato-lanceolate, somewhat downy when young. Spikes branched, very short. Stem arboreferent."—Gathered by Sonnerat, in the East Indies. Branches woody, angular, rough and rugged, particularly the young shoots. Leaves oval-lanceolate, contracted at each end, veiny, ribbed, harsh, four or five inches long, an inch and half broad; white and downy beneath when young. We have nothing to answer.
TOURNEFORTIA.

an answering to this description, nor is the specific character such as to afford much allusion in determining the plant.

13. T. volubilis. Velvet-leaved Tournefortia.—Leaves elliptic-lanceolate, acute, filiform on both sides. Spikes dense, aggregate, cymose, from the forks of the branches, filiform. Stigmas slightly two-lobed. — Gathered by Commerson in Montevideo woods of the island of Bourbon. The branches, spikes, leaves, calyx and corolla are entirely clothed with fine silky pubescence, the globose blosse, and obtuse limb of the latter, on its upper side, being the only smooth parts, except the hermaphrodites, which are snow-white. The leaves are four or five inches long, somewhat undulated, various in breadth. We have from the Mauritius what may possibly be a variety, with very narrow, and nearly smooth, leaves. Its inflorescence betrays no difference.

14. T. arvensis. Blunt-leaved Silvery Tournefortia. Linn. Suppl. 133. Wilddl. n. 9. Poir. n. 8. Brown n. 2. (Buglosson lamurensi; Rump. Amboin. v. 4. 119. t. 55.) —Leaves ovate, obtusifob, filiform on both sides. Spikes in repeatedly compound cymes. Tube of the corolla very short.—Native of the sea-coast, in Ceylon, Ambon, Banda, and other parts of the East Indies. This hybrid is hardly so tall as a man; its main stem very short, the bark full of deep suture; the branches widely spreading, hairy. Leaves crowded about the ends of the branches, alternate, flabellate, about three inches long, entire; tapering at the base; rather felthy, beautifully clothed all over with the finest silky pubescence, which appears to vary in degree, and in one of our specimens, from the island of Bourbon, excels in splendour every plant of our acquaintance. The flowering-flax, longer than the leaves, are at first terminal, but the branch is long protruded at each side beyond them. They are subdivided into tufts of dense recurved spikes, above an inch in length. All the spikes, like the broad obtuse caulis, are filiform. Calyx white, with a short tube, and a recurved limb, altogether not extending beyond the calyx. Mr. Brown describes the stigma as bifid and two-lobed. Ramphius says the leaves are ciliate, and much effeemed in Ambon for their faithful flavour.

15. T. gnaphaloides. Cud-weed Tournefortia. See Brown 496. (Heliotropium gnaphaloides; Linn. Sp. Pl. 188. Wilddl. Sp. Pl. v. 1. t. 745.) H. gnaphaloides litoreae fruticosae americanum; Pluk. Phyt. t. 193. f. 3.) —Leaves linear, obtuse, densely downy on both sides. Spikes dense, downy, recurved, on cymose flaxes.—Native of the sea-coast in the West Indies. We follow Mr. Brown in removing to the present genus this elegant hybrid, whose snow-white downy covering is rather more cotty than filiform, and yet partakes of the filvery beauty of the leaf described. The leaves are crowded, thick, about two or three inches long, and hardly a quarter of an inch wide. Flowers small, white; in short, thick, woolly, solitary or twin, recurved spikes. Berries smooth, the size of a currant.

16. T. subfruticosa. Hoary-leaved Tournefortia. Linn. Sp. Pl. 202. Wilddl. n. 11. Ait. n. 5. (T. subfruticosa, foliis subfunicatis oblongis, fronde comosa; Browne Jam. 170, excluding the synonymy of Sloane, which belongs to Suriana maritima. T. indica; Poir. n. 9. Lamareck Illfr. n. 1880. t. 95. f. 7.) "Leaves nearly lanceolate, hoary. Stem somewhat shrubby."—Native of Jamaica, by the sea-side, near the borough of St. James's. Seldom rives above three or four feet from the ground. Browne. This is a very uncertain species, for which Dr. Browne feems the only authority, nor is there any specimen to reproduce it in the Linnean herbarium. The Thymelea ficte frutes, Sloane Jam. v. 2. 29. t. 162. f. 4, is certainly Suriana maritima, for which it was subtenbently quoted by Linnaeus. Confe-quentiy Willdenow cites it under both. It is sufficient to read Sloane, to see that his plant can be no Tournefortia. Possibly it may, nevertheless, have been what Browne intended. If so, the plant of Lamareck and Poiret has nothing to do with it, and may perhaps be the ferises of Vahl, hereafter described. Miller is recorded as having cultivated the T. subfruticosa, whence it has found a place in Mr. Aitton's work, but apparently without being known at the present day.

17. T. volubilis. Climbing Rough Tournefortia. Linn. Sp. Pl. 201. Wilddl. n. 3. Ait. n. 1. Poir. n. 10. Lamareck Illfr. n. 1884. t. 95. f. 2. Garthn. t. 75. Bryonia nigra fruticosa, racemae ramulæ variis integris, atque caudae fructisoribus in fibro consoitatis, baccis abbasun vel altera nigra macula notatis; Sloane Jam. v. 1. t. 234. f. 143. 2. Virga aurea americana fruticosa glabra, folis subulatis ciliatis, & c.; Pluk. Phyt. t. 235. f. 6.) —Leaves deflexed, ovate, acute, rough with minute points on both sides. Stem twining. Segments of the corolla awl-shaped. —Native of South America and the West Indies. It flowered with Linnaeus in the Uphal garden, and is preferred occasionally in our English hothouses. Sloane says the trunk near the ground is as thick as one's arm, twining round any thing it comes near, rising to the height of seven or eight feet. The branches are slender, round, somewhat zigzag, repeatedly sub-divided, minutely downy, or rather filiform, with close-preferred hairs. Leaves scattered, an inch or inch and half long, on slender, downy, deflexed flaves, about half an inch in length, single-rubbed, entire, flabellate, clothed on both sides with a very minute, white, callous prickles, but no hairiness. Flowers numerous; small, greenish, in lateral, or somewhat terminal, slender, divaricated, downy, cymose panicled, of lax spikes, or rather clovered. Calyx in five deep, hairy, narrow segments. Tube of the corolla filiform, hardly thrice the length of the calyx; limb in five narrow, awl-shaped, spreading segments, above half the length of the tube. Style shorter, with a large long-beaked stigma. Berry half the size of a pea, globose, often two-lobed, white, with black dots.

18. T. levigata. Climbing Smooth Tournefortia. —Leaves spreading, ovate, acute; smooth above; rough with minute points beneath. Stem twining. Segments of the corolla awl-shaped. —Native of Jamaica. Dr. Wright. This has altogether the habit of the last, of which it may possibly be a variety. The chief difference discoverable in the dried specimens is the upper surface of the leaves being perfectly defitute of the innumerable callous points which cover their backs, and which are found on both sides of the foliage of the foregoing. The leaves of the present are also perhaps less deflexed. The inflorescence and flowers afford no marks of distinction. The berries are most frequently of three globular lobes.

19. T. feroces. Climbing Hoary Tournefortia. Vahl Eclog. faci. i. 17. Wilddl. n. 10. Poir. n. 11. (T. indica; Poir. n. 9. Lamareck Illfr. n. 1880. t. 95. f. 3. Frutex; Margr. Brallfl. 78, excellent as to the leaves, but though cited by Vahl, without any exception, the description shews it to be a favenele of a plant.) —Leaves spreading, ovate, acute; rough with minute points above; downy and hoary beneath. Stem twining. Segments of the corolla awl-shaped. —Native of Hispianola, and other parts of the West Indies. Like the two last in size and general habit; but the footflakes are rather shorter; leaves more rounded, and often somewhat heart-shaped, at the base; their upper surface covered with much more numerous and minute, hair-pointed, white, callous tubercles, which produce somewhat of a hoary appearance; while the under
TOURNEFORTIA.

is white with fine close down, and furnished with very prominent ribs. **Inflorescence, flowers, and fruit**, much like the two foregoing. The **stigma** in all has a long conical point.

20. T. tomentosa. Climbing Downy Tournefortia. Mill. Dict. ed. 8. n. 5. Poiret n. 12.—Leaves heart-shaped; downy beneath. Stem twining. Segments of the corolla awl-shaped?—Discovered by Mr. Robert Miller, near Carthagea, in South America. The twining **flame** reach to the height of ten or twelve feet. **Leaves** two inches long, and one and a quarter broad near their base, very downy beneath, on very short **florets**. **Inflorescence** apparently like the last. **Flowers** small, dirty-white. **Berries** juicy, with two, three, or four seeds. We gather from Miller's account, our only authority, that this plant comes very near our laf, of which it may possibly be a variety; yet the leaves seem to be of a broader figure, and their **florets** shorter.

21. T. ferruginea. Climbing Rusty Tournefortia. Lamarck Illftr. n. 1882. Poiret n. 15.—"Leaves somewhat heart-shaped, acute; villous beneath. Stem somewhat climbing. Young branches very hairy."—Native of Hispaniola, where it is known by the name of **Kallakko**. Allied to **T. cohohlis**, but its branches are less elongated and trailing; its **leaves** and young shoots very much hairy, or shaggy, with fliff, straights, dull-coloured hairs, equally remarkable on the **florets**, and ribs at the backs of the leaves. The latter are pointed, thick, harsh above, downy beneath, a little fringed at the margin, dark green, two or three inches long and one broad. Their **florets** straight, very short. **Flower-flarks** much branched, hairy, divided into short **spikes**. **Flowers** small, unaltered, with a rough hairy calyx, and a short tubular corolla. Poiret.

22. T. semiplana. Rough Small-leaved Tournefortia. Lamarck Illftr. n. 1883. Poiret n. 14.—"Leaves reflexed, oblong, obtuse; very rough above; wrinkled and downy beneath. Flower-flarks branched, terminal. Berries conical."—Gathered in Hispaniola, by Joseph Martin. **Branches** slender and flexible, flattened, somewhat downy. **Leaves** flaked, slightly toothed, an inch long and four lines broad, rounded at the base, blunt at the extremity. **Calyx** hairy, rough, widely spreading, acute. **Berries** reddish, oval, almost conical. Poiret, whole description is our only guide, mentions a supoosed variety, with **leaves** twice as long, but narrower, of which, however, he had seen neither **flowers** nor **fruits**.

23. T. scandens. Climbing Brown-flowered Tournefortia. Mill. Dict. ed. 8. n. 4. Poiret n. 18.—"Leaves heart-shaped, hairy. Spikes reflexed, branched. Stem twining. Segments of the corolla awl-shaped."—Found in Jamaica by Houtfou, who sent fees to Miller. We presume it to be the same with what Mr. Brown mentions as **T. scandens** of Solander's manuscripts, and therefore we adopt from him the character of the **corolla**; though our **leaves** was marked by Dr. Wright, with doubt indeed, as the plant of Solander; but it does not at all answer to the description. The present has *hbrtbrh* brunching **flame**, ten or twelve feet high. **Leaves** near three inches long, one and a half broad near the base, acutely pointed, on short **florets**. **Flowers** in very **florets**, branching; terminal **spikes**, small, unaltered, of a dirty brown. **Berries** pulpy, with few **fruits**. Miller.

24. T. levifolia. Self-climbing Tournefortia. Poiret n. 19.—"Leaves felible, linear-lanceolate, villous. Flowers in roundish dense terminal **florets**. Stem **hbrtbrh**."—Gathered by Commeron at Buenos Ayres. **Branches** branny, round, clothed with *tiff* hairs. **Leaves** obtuse at each end, though a little contracted at the base, half clasping the **flame** an inch and a half long, three lines broad, downy on both sides. **Flowers** at the ends of the branches, on a common **flame**, which divides into two parts, each bearing several very dense crowded **spikes**. **Stalks** and **calyx** clothed with numerous, *tiff*, glandular hairs. Poiret.

25. T. carpesia. Flehy-leaved Tournefortia. Mill. Dict. ed. 8. n. 6. Poiret n. 20. (Pittonia frutescens, folio can pdfo, hirifuto et obtuso; Plum. Gen. 5.)—"Leaves flaked, oval; rugose and very rough above; paler and smoother beneath. **Spikes** branched, axillary. Stem *hbrtbrh*."—Gathered by Robert Millar, near Carthagea in South America. Stem woody, near 20 feet high, with strong rough branches. **Leaves** thick, oval, four inches long and three broad, on pretty long **florets**. **Flowers** small, white. **Berries** small, with two or three oblong *seeds*. Miller.

Besides all the above species, Poiret has a **T. bifida**, n. 16. Of this we find a specimen, gathered by Commerson in the island of Mauritius; but it appears to us totally foreign to this genus. The **flame** is *hbrtbrh*, with opposite, bluntly quadrangular, ragged branches. **Leaves** like-wise opposite, though Poiret says alternate, on downy channelled **florets**, ovate, about two inches long, entire, even, smooth, pale green, with a yellow mid-rib, slender lateral ribs hairy at their origin, and innumerable, excessively minute, reticulated veins. **Spikes** opposite, between the *fotfotfals**, and half as long, broad at the base, pointed, filky, deciduous. **Flower-falts** axillary, solitary, opposite, round, downy, longer than the **florets**, each bearing two, horizontally distended, fimple, unilateral **spikes**, of numerous, small, *_feeble* **flowers**, in two rows. **Germs** inferior, oblong, silky, crowned with a **calyx** of five deep, round, silky segments. **Corolla** funnel-shaped, white or yellowish, twice as long as the calyx and *germs* together, a little silky externally. **Stamen** within the tube; their **anthers** large, oblong, obtuse. Of the **style**, **stigma**, or **fruit**, we can give no account. This shrub appears to belong to the natural order of **Rubiaceae**, but we have not sufficient materials to determine its genus.

TOURNEFORTIA, in Gardening, contains plants of the shrubby exotic kind, among which the species cultivated are, the hairy Tournefortia (**T. hirifolifera**) ; the climbing Tournefortia (**T. volubilis**); the fist Tournefortia (**T. trifida**); the dwarf Tournefortia (**T. humilis**); the broad-leaved Tournefortia (**T. cymosum**); the fleshy Tournefortia (**T. argentea**); and the hoary-leaved Tournefortia (**T. hirifolícola**).

Method of Culture.—These plants may all be increased by seeds, which should be procured from the countries where they grow naturally, and be sown in small pots filled with light earth, and plunged into a hot-bed of tanners' bark. They sometimes grow the first year, but often remain in the ground a whole year: therefore, when the plants do not come up the same season, the pots should be plunged in autumn into a tan-bed in the stove, where they should remain all the winter, and in the spring be removed and plunged into a fresh tan-bed, which will soon bring up the plants, if the seeds were good. When these are fit to remove, they should be each planted in a small pot, and plunged into a tan-bed, where they must be shaded from the sun till they have taken root, and then be treated in the same way as other tender plants from the same countries, which require to be kept constantly in the bark-stove. They may also sometimes be increased by cuttings, which should be planted in pots, and plunged into the bark-bed.
Thee are all plants of the tender kind, which conflantly 
fland in need of the heat of the stove in this climate.

They afford variety in stove collections, among others in pots, 
mostly retaining their leaves the year round.

TOURENMÉ, in Geography, a town of France, in the 
department of the Straits of Calais; 9 miles N.W. of 
St. Omer.

TOUREMÉNE, René-Joseph de, in Biography, a 
learned Jesuit, was born at Remus in 1601, entered among the 
Jesuits in 1680, and took all the vows of their order in 
1695. In 1701 he reigned in the Jesuits college at Paris, for 
the convenience of conducting and superintending the jour- 
nal of Treuoux, or "Mémoires pour servir à l'Histoire des 
Sciences et des beaux Arts," printed at Treuoux, and 
periodically published from 1701 to 1767, when it fell with 
the society. In 1718, Tourneuine was made librarian of 
the Jesuits library, in the professed house of the society, 
where he died in 1739, at the age of seventy-eight years. 
Tourneuine published some other works of less note.

Moreri.

TOUREUR, Peter le, born at Vologne, in Nor- 
mandy, in 1736, gained prizes at Montauban and Bézançon 
for his literary pieces, which were reprinted at Paris, and 
admired on account of their philosophic spirit and eloquence. 
But he was brought more into notice by his free translation 
of Young's "Night Thoughts," which being favourably 
received, was followed with translations of "Hervey's Me-
ditations;" "The Life of Savage;" "Offian and other 
Gaelic Poems;" a great part of the "Universal History;" 
"Shakspere;" "Claraïa;" and other works. These 
translations are introduced by prefaces, abounding with bold 
and interesting ideas. His praisés of Shakspere provoked 
various attacks, and particularly from Voltaire. Le To- 
urneur, who died in 1788, is represented as one of the mildest 

TOURNIQUET, Fr. from tourner, to turn, a machine, or 
instrument, employed in the practice of Surgery, in order 
to stop bleeding. It is only applicable, however, to the 
limbs, and its use is merely intended to be temporary, that 
is to say, until some more permanent method of checking the 
haemorrhage can be practised. Thus, in the operation of 
amputation, the tourniquet is applied with a view of prevent-
ing the loss of blood, which would otherwise happen before 
the surgeon had done with the knife and the raw, and before 
he could possibly devote his attention to the ligation of the 
arteries. But it is never put on tightly with the design of 
leaving it any considerable time in this way, as the con- 
fined production would inevitably bring on mortification. 
Sometimes, after amputations, operations for aneurisms, 
and in cases of wounds, it is left loosely upon the limb, so 
that, in the event of a sudden haemorrhage, it may be 
tightened in an instant. Here, however, the surgeon does 
not regard it as the principal means by which the bleeding 
is to be stopped; but simply as a temporary, until an opportunity has been afforded of securing the bleeding 
veins in another way.

When haemorrhage takes place from a large artery in 
one of the limbs, where the veins can be conveniently com-
pressed above the wound in it, a tourniquet, judiciously 
applied, never fails in putting an immediate stop to the 
bleeding.

Before the invention of this instrument, which did not take 
place till the latter part of the seventeenth century, surgery 
was really a very defective art. No important operation 
could be undertaken on the extremities without placing the 
patient in the most imminent peril; and the want of the aid 
afforded by the tourniquet made many wounds mortal which 
otherwise would not have been attended with the least 
danger.

Perhaps we are not justified in stating that the tourniquet 
was not invented till the late period above specified; and it 
might be more correct to say, that it has been used in a 
rude and imperfect manner ever since surgeons have known 
that the flow of blood through a limb may be commanded 
by preasure. For when a tight band was tightly applied 
round a limb, in order to stop bleeding, it was, in fact, a 
kind of tourniquet. The records of surgery, indeed, in- 
form us, that the old surgeons used to surround the limb 
with a band, with which they made such a degree of con- 
striction, that the circulation was quite stopped. These 
practitioners also believed, that the pressure of the band was 
advantageous in benumbing the limb, and moderating the 
pain of operations.

The violent pain and contusion, however, which this sort 
of tourniquet occasioned, were frequently followed by 
floughing and abscesses, and therefore surgeons endeavoured 
to devise some other method of checking haemorrhage. The 
application of the circular band was first improved, so that 
it caused less pain and less mischief to the skin. The limb 
was surrounded with a very thick compres, over which the 
band was placed. Two small sticks were next put under the 
band, one on the inside, the other on the outside of the 
limb; and they were twisted till the band was rendered suffi-
ciently tight. It is in this manner, says Dionis, in his 
 Treatise on the Operations of Surgery, that carriers tighten 
the cords which fasten the bales of goods in their carts. A 
French surgeon named Morel is said to have made this first 
improvement in the application of tourniquets.

Although in the Armamentarium Chirurgicum of Scul-
tetus, there is an engraving of a machine invented by this 
author for compressing the radial artery by means of a screw, 
M. Petit is universally allowed to be the first who brought 
the tourniquet to perfection, by combining the circular band 
with a screw, in such a manner, that the greatest pressure 
operates on the principal artery. It was in 1718 that he 
prevented his improved instrument to the Academy of 
Sciences. It consists of two pieces of wood, one of which is 
superior, the other inferior. The inferior piece is about 
four inches and a half long, and nearly two broad. Its 
under surface is somewhat concave, while its upper one is a 
little convex; and the ends are hollowed out. From its 
middle part rises a round eminence, about four lines 
high, and eight and a half broad. The superior piece is 
almost the same as the inferior, but rather shorter. The 
eminent which ascends from its middle part is five lines 
high, and an inch and a half in diameter. This eminent is hollow 
within, and calculated to receive a wooden screw, the top of 
which is a sort of button for turning the screw. The 
grooves of Petit's screw were about four or five, and each of 
them four lines in diameter, in order that a half-turn 
might produce the necessary effect. Lastly, all the pieces 
of the instrument were fastened together with an iron pin, 
which went through the middle of the two pieces of wood, 
and through the whole length of the screw. This iron pin 
was riveted under the inferior piece, and at the top of the 
button; in such a manner, however, that the screw was ca-
pable of turning on it as a pivot.

In order to apply this tourniquet, the limb is to be sur-
rrounded with a double flap, about four finger breadths 
wide, and made of chamois leather, which is the softest 
material that can be used. To one end of the flap a small 
double cushion is fastened, of the same length and breadth 
as the lower piece of the tourniquet. A narrow compres, 
or cylindrical pad, is also requisite, for the purpose of com-
pressing
TOU

Treating the track of the vessels. This comprises consists of a very firm roll of linen, covered with chamois leather. The ends of a piece of tape are sewed to the outer part of the pad, and thus the tape leaves a passageway for the leather flap. By this means, the pad can be moved to any situation on the field which may be most convenient, according to the bulk of the limb. The middle of the tape is to be fastened to the outside of the leather flap. The cylindrical compresa, or pad, is to be put over the course of the vessels. The double cushion is to be placed on the opposite side of the member, while the leather flap is to surround the limb in a circular manner. All the different pieces of the apparatus are next to be retained by the tape, which is to be tied at the side of the cushion.

The tourniquet is now to be put over the cushion, on that side of the limb which is furthest from the track of the large vessels, and is to be fastened in this situation by a double band, with a hole in it for the reception of the upper part of the ferret.

In order to make proper compression, the screw is to be half turned round from the right to the left. The upper piece of the tourniquet becoming now further from the lower one, the double band draws the pad, and presses against the vessels, so as to make the due degree of compression for stopping the flow of blood through the main arteries.

The following are the advantages attending the use of Petit's tourniquet. 1. It comprises the lateral parts of the limb left than the tourniquet previously in use. 2. It requires the aid of no assistant either to hold, tighten, or loosen it. 3. The operator is able of himself to stop the flow of blood through the artery by means of the screw. 4. When there is any danger of hemorrhage after an operation, this kind of tourniquet may be left on the limb; and in case of bleeding coming on, the patient, if no one be at hand, can tighten the instrument himself as much as necessary. 5. The contrivance which this tourniquet produces may be continued longer than that of the old method, without hazard of loosening, because it does not altogether stop the flow of blood through the collateral arteries.

The tourniquet just described is certainly very complex, when compared with what is now used by the best modern practitioners; but still it is the original of the latter, and are constructed on the same principles. The several pieces of a modern tourniquet are always kept connected together, and, instead of two pieces of wood, used by Petit, there is contrived a brads bridge, which is capable of being elevated or depressed by means of a screw of the same metal. Over this bridge a very strong band proceeds, and, by passing under two little rollers at the ends of the bridge, it always remains connected with the instrument. A convex form pad is sewed to the band, and put immediately over the artery when the instrument is applied. There are no cushions for the opposite side of the limb under the screw; but a thick piece of leather, through which the band proceeds in two places, is sometimes put under the lower surface of the brads, and serves to prevent any bad effects of its pressure on the skin. It is usual, also, for the surgeon to fold some rag, and put it in this situation at the time of applying the instrument.

Cooper's Dict. of Pract. Surgery.

In the army, surgeons are provided with what are named field tourniquets, in addition to such as are always found in cafes of amputating instruments. A field tourniquet is more simple in its construction, and is particularly intended for use on the field of battle, where numerous soldiers frequently band in need of temporary compression of their bleeding limbs, until the surgeon has time to pay their accidents further attention. It consists merely of a strong band, a pad fixed to this band, and a buckle. It admits of being applied in an infant. Every military surgeon is commonly furnished with two or three dozen field tourniquets, and the plan is pretty good, as the preservation of many lives by it has confirmed.

The reader will have a better idea of the nature of a tourniquet, by referring to engravings of the instrument; but a sight of the thing itself will be still more useful.

Some tourniquets of different constructions are represented in Plate I. of the Surgical Instruments, where fig. 1. shews a tourniquet of the most simple kind, which is tightened by twisting the band D with the piece of wood B. C is the pad which is to be placed upon the main artery, and A is a fort of metallic or wooden guard, for preventing the twitlful part of the band from hurting the skin. Fig. 2. a tourniquet of a more modern and improved made. D the ferew. C, C, the two pieces of the frame or bridge of the tourni- quart, which tighten the band B, when the upper piece is raised by turning the screw. A is the pad. Fig. 3. repre- sents another kind of tourniquet, which is tightened by a contrivance resembling a windlass in principle; C the handle by which it is turned; E a fleet branch, which serves to prevent the handle from turning back again; B a short bit of chain, which fixes itself in the notch of the circle, and by carrying the hand with it when moved round, tightens the band D; A the bands of the tourniquet. Fig. 4. another kind of screw-tourniquet.

TOURNOS, in Coinage, the name applied to French money in the old system, as itformerly is to English money.

TOURNON, in Geography, a town of France, in the department of the Loir and Garonne; 12 miles E. of Villeneuve d'Agon.—Also, a town of France, situated on the river Creuse, one part in the department of the Indre, and the other in the department of the Indre and Loire; 7 miles S. of Preuilly.—Also, a town of France, in the department of the Ardèche, on the Rhône; 22 miles N.N.E. of Privas. N. lat. 45° 3'. E. long. 5° 3'.—Also, a town of France, in the department of Mont Blanc; 15 miles E. of Chambery.

TOURNUS, a town of France, in the department of the Saône and Loire, on the Saône; 3 polls S. of Châlons fur Saône. N. lat. 46° 34'. E. long. 5° 9'.

TOURO, a town of Portugal, in the province of Beira; 13 miles W.S.W. of Alfayates.

TOURON, in Geography, a town of Perse, in the province of Co- hælin; 80 miles S.W. of Neufabur.

TOUROULIA, in Botany, a Caribbean name, used by Aublet, but absolutely inadmissible into any classical work.

TOUROUFE, a town on the west coast of Sumatra. N. lat. 2° 50'. E. long. 97° 6'.

TOUROUVRE, a town of France, in the department of the Orne; 6 miles N.E. of Mortagne.

TOURRETTE, mark-AntoHia-Lewis-Clarej de la, in Biography, was born at Lyons in 1729, and having studied at the college de Harcourt, at Paris, settled in his native place, where for twenty years he occupied an important post in the magistracy. Strongly attached to the study of natural history, he formed, in 1764, a large collection of insects, and a series of specimens in mineralogy. In 1766 he introduced into a large park near the town of Arbelle all the foreign trees and plants that could bear that climate, and in his own garden at Lyon he cultivated more than 1000 species of rare plants. He was a companion of J. J. Rumphius.
feau, in his botanical excursions; and he maintained a correspondence with Linnaeus, Haller, Adanson, Jussieu, and other celebrated botanists of Europe. At length, overcome by fatigue at the siege of Lyons in 1793, he sunk under a disorder of the lungs, and died in his 60th year. His principal works are, "Demonstrations Elémentaires de Botanique," 2 vols. 8vo.; "Voyage à Mont Pèlerin," 1787; 8vo.; "Chloris Lugdunensis," 1785; 8vo.; "Conjectures sur l'Origine des Belemnites;" "Mémoire sur les Monstres Végétaux," and "Mémoire sur l'Helminthoepon PHYSIQUE."

TOURRETTIA, in Botany, was so named by its discoverer, the unfortunate Dombey, in honour of his countryman M. de la Tourrette, author of the Chloris Lugdunensis, and lecturer on botany in the Veterinary school at Lyons. Whether M. l'Heritier thought but moderately of the claims of this gentleman, we know not; but he chose the name of Dombeya for the plant in question, on account of its beauty and singularity. That appellation indeed is now bestowed on a much nobler genus, see Dombeya and Dombey, and we trust it will so remain, for the Dombeya of Canavilles, like most of that author's monadelphous genera, is too ill-defined to be the guardian of such a name.—Schreb. Gen. 406. Willd. Sp. Pl. v. 3. 263. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 4. 179. Fougeroux in Mem. de l'Acad. des Sciences for 1784. 200. t. 1. Lamarrck Illustr. t. 527. Poiret in Lam. Dict. v. 7. 719. (Dombeya; l'Herit. Stirp. Nov. 33. Salibb. Stirp. Rar. 5.)—Clas and order, Didynamia Angiosperma. Nat. Ord. Perfonate, Linn. Bignonie, Juss.

Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, two-lipped, coloured in the bud, deciduous; its upper lip acute; lower obscurely four-toothed, furrowed with an acceseory membrane at the base. Cor. of one petal; tube compressed, the length of the calyx; upper lip vaulted, compressed, its edges converging; lower lip none, except a pair of minute teeth. Stam. Filaments four, thread-like, concealed under the upper lip, two of them shorter than the rest; anthers two-lobed. P. Germen superior, oblong, obsoletely quadrangular, granulated; style thread-like, the length of the lip, parallel to the stamens; stigma divided. Peric. Capsule oblong, coriaceous, more or less beft with prickles which are occasionally hooked, of four cells and two valves. Seeds from four to six in each cell, ovate, somewhat triangular, surrounded with a membranous notched border divided at its base.


1. T. Iappacea. Scarlet-flowered Tourettia. Willd. n. 1. Ait. n. 1. (Dombeya lappacea; l'Herit. Stirp. Nov. t. 17. Salibb. Stirp. Rar. t. 3.)—Found by Dombey in Peru. First raised in England by Mr. Salisbury, at Chapel Allerton, near Leeds, in 1788, from seeds communicated by M. l'Heritier. The plant is annual, of very luxuriant growth, filling a moderate-sized flore, so that few cultivators can be induced to allow it a place in their collections; the flowers, which are produced in abundance from midsummer till the end of autumn, being, though elegant and curious, less tawdry and glaring than many popular favourites. The stem is square, much branched in a forked manner, climbing, pale green, smooth, tender and pelliculose, as well as the leaves, which are opposite, falked, serrate or quinate, in pairs on a common stalk, which terminates in a very delicate, spiral, adhesive, compound tendrils: leaves ovate, acute, strongly and unequally serrated, about an inch long, shining, with one rib, and many oblique parallel veins.

Flowers from the forks of the branches, in solitary, simple, lax, ascending spikes rather than corymbs, each flower with a small nut-shaped bract at its base. The lower ones only are perfect and fertile, having a green calyx, clothed with fine yellow hairs, and a violet corolla; several of the uppermost confit chiefly of a dilated scarlet calyx, on which much of the beauty of the plant depends, and which emulates the coloured bracteas of the Barfiae and Ajuga. The calyptra, though usually mucrinated with hooked prickles, is sometimes smooth and bare, a variation similar to what is seen in Datura, and by no means indicating a specific distinction.

TOURS, in Geography, a city of France, and capital of the department of the Indre and Loire, on the Loire. Before the revolution the capital of Touraine, and fee of an archbishop. The number of inhabitants is about 33,000. In 722, the Saracens were defeated by Charles Martel, near this town, with the loss of 10,000 men ; 47 polls N.E. of Bourdeaux. N. lat. 47° 25'. E. long. 0° 16'.—Allo, a town of France, in the department of the Puy de Dôme; 12 miles E.S. of Billon.

TOURTERELLES, a cluster of small islands in the Indian sea, near the coast of Africa. N. lat. 11° 50'.

TOURVACORA, a town of Hindoostan, in Myource; 32 miles N. of Serigapatam.

TOUVES, a town of France, in the department of the Var; 4 miles S.E. of St. Maximin.

TOUVILLE, a town of France, in the department of the Eure; 10 miles W. of Louviers.

TOURY, a town of France, in the department of the Loiret; 12 miles W. of Pithiviers.

TOUSERA, a town of Africa, in the country of Bideulgerd, depending on Tunis. N. lat. 32° 30'. E. long. 10° 44'.

TOUSIEH, a town of Asiatic Turkey, in Natolia; 21 miles N.N.E. of Kiangari.

TOUT temps pris et encore ef, that is, always ready, and so at the present time; a kind of plea in way of excuse or defence for him that is sued for any debt or duty belonging to the plaintiff.

TOUT Ensemble, in the Arts. See ENSEMBLE.

TOUT, pur mes et per. See PUR MY.

TOUTERON, in Geography, a town of France, in the department of the Ardennes; 13 miles S. of Mezières.

TOUTS-I-TCHAMSSIA-LING, a town of Thibet; 30 miles N.W. of Tankerdong.

TOUTTI, a town of Nubia, on the left bank of the Nile; 90 miles N. of Sennar.

TOUVRE, a river of France, which runs into the Garente, about half a mile above Angoulême.

TOUY, a river of Tartary, in the country of the Kalkas, the waters of which are equally pure and fabulous with those of the Toula, (which see,) and waters plains as fertile as those adjacent to this river; and, after having traversed several very extensive cantons, suddenly loses itself in the bosom of the earth, and never appears again.

TOU-YANG, a city of China, of the first rank, in Kuang-fu; 1127 miles S.S.W. of Peking. N. lat. 23° 18'. E. long. 107° 0'.

TOU-YUN, a city of China, of the first rank, in Koeitehao. The jurisdiction of this city is but small, and comprehends not only two cities of the second order, and two of the third. It is in the neighbourhood of mountains, which are inhabited by the Seng-miao, a people whom the Chinese could never subdue, and who have their particular government. It is separated from them only by a river, and
and some steep mountains; 955 miles S.S.W. of Peking.
N. lat. 26° 12'. E. long. 107° 2'.

TOW, Te, derived from the Saxon tean, or teban, to draw, in Sea Language, is to draw a ship forward in the
water, by means of a rope attached to another vessel or boat
which advances by the force of rowing or pulling. Towing is
effected either when a ship is disabled, and rendered un-
capable of carrying sail at sea; or when her sails are not
fixed upon the masts, as in a harbour; or when they are de-
prived of their force of action by cession of the wind.
When a ship of war is dismasted, or otherwise disabled
from carrying sail at sea, she is usually towed by a cable reaching
from her bow to another ship a-head. In a harbour, towing
is practiced by one or more boats, wherein the force of all
the oars is exerted to make her advance. Falconer.

Tow-Chain, in Husbandry, a name given by our farmers
to a chain, that makes a part of the structure of the plough,
altering the plough-tail to what they call the plough-head.
See Plough.

Tow-Line, in Sea Language, a small hawser generally
used to remove a ship from one part of a harbour or road
to another, by means of anchors, capsterns, &c. It is also
employed occasionally to moor a small vessel in a harbour,
conveniently sheltered from the wind and sea.

Tow-Rope is the name given to any cable or rope used in
towing.

TOWA, in Geography, a river of Wales, in the county of
Caermarthens, which runs into the Tave, at St. Clare.
See St. Clare.

TOWACZOW. See Tobitschau.

TOWAGE, is a term used for money, or other recom-
pence given by bargemen to the owner of the ground near
the river where they tow a barge, or other vessel, for the
liberty of pacling along the side of it.

TOWAMENCING, in Geography, a township of Penn-
yvania, in the county of Montgomery, containing 488 inhab-
habitants.

TOWAMENSING, a township of Pennsylvania, in the
county of Northampton, containing 593 inhabitants.

TOWN HEAD, a cape of England, on the N.W.
coast of Cornwall. N. lat. 50° 26'. W. long. 4° 57'.

TOWNANDY, a township of Pennsylvania, in the county
of Luzerne, containing 788 inhabitants.

TOWAR, a small island near the north coast of Celebes,
in the East Indian Sea. N. lat. 1° 18'. E. long. 124° 23'.

TOWCESTER, commonly called T fluorfs, and in the
Domelday book Towceifier, a market-town in the hundred of
the same name, and county of Northampton, England; is
situated on a plain near the banks of a small river named
Tove, 10 miles S.W. by S. from the county-town, and
60 miles N.W. from London. Numerous Roman coins
have been found here, particularly about Berrymount Hill,
an artificial mount, composed of earth and gravel, on the
N.E. side of the town. It is flat on the top, about twenty-
four feet in height, and the diameter one hundred and two.
This hill was surrounded by a moat capable of being filled
with water from the adjoining brook, and has every appear-
ance of having been of Roman formation. Horley places
here the flatillon Laetodorum with great probability of cor-
rectness. Mr. Camden and Dr. Gile have fixed it at
Stony Stratford, deriving its British name from the two
British words, lach, a lane, and dour, water. On the
N.W. side of the town are vestiges of a foss, and the
ruins of a caffle or tower, probably a SAXON work; for
in that period Towceiffer appears to have been a place of
considerable strength, and is said to have been well
fortified, that the Danes who besieged it were unable to
take possession. It muil, however, have suffered severely
from them, for in the year 921, king Edward issued his
mandate for rebuilding and fortifying Towceifter. The
Danes of Northampton and Leicester, who had previously
made a truce with the Saxons, suddenly broke their engage-
ment; and marching to this place, carried on an assault for
the whole day; but by the vigorous resistance of the in-
habitants, and the aid of a Saxon army, the Danes were
obliged to retreat; Edward having fortified the town, and
encompassed it with a stone wall. Towceifter, in its present
state, consists principally of one long street, in general well-
built: and being a great thoroughfare, there are several
good inns. In the windows of one, the Talbot, are the
arms and name of William Sponne, archdeacon of Norfolk,
and rector of the parish; who, in the twenty-ninth year of
Henry VI., gave this inn and certain lands to the town;
the revenues to be applied to repairing and paving the
streets. A monument in the church commemorates his
benefaction. He is represented in a loofe robe, which de-
feends beneath his feet, with an ermine hood and sleeves.

The by returns under the population act of the year 1811,
the number of house in Towceifter are flated to be 485;
the inhabitants 1245. These houses principally manufacture
the clofe of flilk and lace; of the latter article great quantities
are made in the town and in the adjacent villages. Four
fairs are held annually; and a market weekly on Tuesdays.

Sir Richard Empfon, famous as the favourite of King
Henry VII., and one of the instruments of his avarice and
oppression, was the fon of a feeve-maker in this town.
By a rigorous enforcement of the penal statutes through
the kingdom, he and his associate Edmund Dudley incensed
the people to fuch a degree, that Henry VIII. was con-
strained to submit to popular renonfrance, and fign his
hand for their execution. Empfon was tried at North-
ampton, and beheaded Augulf 16, 1510.—Beauties of
England and Wales, vol. xi. Northamptonshire; by J.
Britton, F.S.A. Hiftory, &c. of Northamptonshire, by the
Rev. —— Brydges, 2 vols.

TOWER, Turm, a high building, confifting of feveral
flories, and ufually of a round form, though fometimes
square or polygonal.

Before the invention of guns, they used to fortify places
with towers, and to attack them with moveable towers of
wood, mounted on wheels, to fet the besiegers on a level
with the walls, and drive the befieged from under the fame.

These towers were fometimes twenty flories, and thirty
fathoms high: they were covered with raw flkins, and a
hundred men were employed to move them; and they were
affiliated by the caplern and other mechanical contrivances.

The moveable towers of the ancients were of an amonishing
magnitude. Hero [s]tiguishes three kinds: the smallell were;
he fays, of fifty cubits and ten flories; the bafe, which was flquare, measured fifteen cubits on each fide.
The larger were ninety cubits high, and had fifteen
flories: the grefteft, called double, were of twenty flages;
they were largest at bottom, and decreafed every flory:
the dimensions of the timber used for the uprights, the
trafvers, and other principal pieces, were proportioned to each
of their three fixes. The flength and thickness of the
wheels bore proportion alfo to the weight which they were
to carry; the number of the wheels was proportioned to
the fquares of their bases: they had at leaffix, and fometimes
eight. The towers or helfreys, as they were called,
of more modern times, were not fo large; they rarely ex-
cceeded three or four flages or flories, and were covered
with raw hides to protect them from fire; in three was a bridge
to be drawn on the parapet. When the works were to be
flormed. The lower flories or ground-floor was occupied by
a ram; the upper flories accommodated archers and
M
The Tower of London, the towers of the late Baillie, &c.

The Tower of London is not only a citadel to defend and command the city, river, &c. but also a royal palace, where our kings with their courts have sometimes lodged.

It contains a royal arsenal, in which are arms and ammunition for 80,000 soldiers; the offices of ordnance; a treasury for the jewels and ornaments of the crown; formerly a mint for coining of money; the great archive, in which are preserved all the ancient records of the courts of Westminster, &c. and is the chief prison for state criminals.

In the midst of it is the great square white tower, built by William the Conqueror, about the year 1079. Within the Tower is a parochial church, founded by king Edward III. and dedicated in the name of St. Peter in Chains, exempt from all jurisdiction of the archbishop, and a royal chapel, now diffused.

The chief officer of the Tower is a constable, or chief governor, under whom is the lieutenant-governor, who acts by his direction, and in his absence. He had, by grant of several of our kings, unam lagenam, two gallons and a pint of wine before, and as much behind the meal of all wine ships that come to London; and a certain quantity out of every boat laden with lobsters, oysters, and other shell-fish, and double the quantity out of every alien's boat palling by the Tower. Under the constable, besides the lieutenant, are a deputy-lieutenant, a major, a chaplain, a physician, a gentleman-porter, a gentleman-gaoler, a surgeon, and forty warders. The gentleman-porter has charge of the gates to lock and unlock them, and deliver the keys every night to the constable or lieutenant, and receive them of him the next morning: he commands the warders in waiting, and at the entrance of a prisoner has for his fee vestibula superiores, or else a composition for the same. For the yeomen warders of the Tower, see WARDEN.

In the Tower is likewise kept a court of record by prescription for the liberty of the Tower, of debt, trespass, and other actions of any sum.

The Tower liberty, subject to no jurisdiction but that of the Tower itself, includes both the Tower-hills, part of Earl Smithfield, Rosemary-lane, Wychelsea-square, Little Minoirs, Artillery-street, French-alley, Duke-street, Steward-street, Gun-street, Fore-street, and the other courts and alleys within their compass, in Spitalfields.

Tower, in Glass-making. See LEER.

Tower-Battions, in Fortification, are small towers, made in the form of bastions by M. Vauban in his second and third method; with rooms or cellars underneath, for accommodating men and guns. See FORTIFICATION.

Tower, Hollow. See HOLLOW TOWER.

Towers, Inclined, are those whose tops hang so far over, as to appear in danger to people walking below. Such is that of Pisa, 157 feet high, whose top overhangs the base 15 feet; and that of Bologna, 150 feet high, whose top overhangs the base 8 feet; and the reason why they do not fall is, that their centres of gravity are supported, or the lines of direction in them fall within their base. But if towers of this kind, that incline, were to be erected in height by any additional weight on their tops; in that case the centres of gravity would be raised, and their lines of direction fall without the base, so that the towers themselves must fall.

Tower Mustard, and Baifard Tower Mustard, in Botany. See MUSTARD.

Tower Pound, an old English weight for coins. This tower or moneyers' pound, with which gold and silver were weighed in England before the reign of Henry VIII. and which is still occasionally referred to on the subject of coins, was lighter than the pound Troy by fifteen pennyweights troy.

Tower-Hill, in Geography, a town of the state of Rhode Island, with a post-office; 17 miles S. of Providence. Alto, a town of North Carolina, on the Neuse; 30 miles W. of Newbern.

Tower Island, a small island in the East Indian sea, near the S. coast of the island of Flores. S. lat. 9° 2'. E. long. 124° 44'.

TOWIACHES, called Panis by the French, a tribe of Indians in Louisiana, who live on the S. bank of the Red river, by the cource of the river upward of 800 miles above Natchitoches, and by the nearest land distance about 340 miles. They have two towns near one another: the lower town, where the chief lives, is called Nitchera, and the other is called Towahach. Their present chief is named the Great Bear. They are at war with the Spaniards, but friendly to those French and American hunters who have lately been among them, according to the statement of Mr. Jefferson in the year 1806. They are likewise at war with the Ofages, as is every other nation. For many hundreds of miles round them, the country is a rich prairie, covered with luxuriant grasses, which is green summer and winter, with skirts of wood on the river bank, by the springs and creeks. They have many horses and mules. They raise more corn, pumpkins, beans and tobacco than they want for their own consumption, so that some of these commodities furnish articles of trade. They have but few guns, and very little ammunition, which they keep for war, and hunt with the bow. Their meat is principally bufalo, and they seldom kill a deer, though plentiful. They have also elk, bears, wolves, antelopes, and wild hogs in abundance, and white rabbits and hares, as well as the common rabbits. The men are generally altogether naked, and the women nearly so, with the exception of a small flap of a piece of skin. They have many Spaniards among them, taken from the settlement of Santa Fe, when they were children. Their language differs from that of every other nation, the Towakanoses excepted. Mr. Jefferson states the number of men at about 400; a great number of them having been swept away, about four years before, by the small-pox.

TOWING-PATH, the road or path which is formed along on the borders of navigable rivers and canals, for the purpose of drawing different sorts of materials for farm and other uses, in some kind of small vessels, on them, either by men or horses. (See E.C, fig. 16. Plate 1. Canals, and fig. 40. Plate V.) These paths constitute one of the great improvements in this fort of navigation, by removing the inconvenience and difficulty afforded by the mode of hauling the barges by means of men instead of horses, where they are formed with that intention.

In speaking of the inland navigation of the river Severn, and the county, in the Shropshire agricultural report, Mr. Telford observes, that with regard to adopting the mode of hauling barges by means of horses, instead of the present barbarous and expensive custom of performing this flave-like office by men, it is only necessary that a good towing-path for horses should be formed along the banks of the river, and which will no doubt take place, if any scheme of general
ival improvements should ever be adopted. That in the mean time, a laudable example has been shewn by Mr. W. Reynolds, of Ketley, who has formed a towning-path for horses near to the new manufacturies at Coalport, and has carried it on through his father’s property to the iron bridge, a distance of about two miles: this being along some rugged banks, and over some of the worst fords which are on the river, proves, beyond contradiction, it is thought, that this fort of towning-path is practicable at no very extravagant expense, and besides, that it completely destroys the common objection of horse towning-paths where many rapid or fordous interludes.

In constructing all sorts of towning-paths, they should be formed as much on the level as possible, and be well and firmly laid with some convenient fort of hard materials.

Where they are for men or small animals, they need not be of such breadths or depths of hard fubstances, as where large and many horses are in use. In carrying them over fords or runs of water, an experienced workman will molly be necessary.

**TOWING-Path Wall.** A wall under the bridges, A B C D, (Plate V. Canals, fig. 42.) for keeping up the towning-path. **TOWLGAW, in Geography.** A town of Hindooftan, in Dowlatabad; 6 miles W. of Tooliapour.

**TOWN,** a place inhabited by a considerable number of people, of an intermediate magnitude and degree between a city and a village, &c.

It is hard to give a tolerable definition of a town, because the idea is a little arbitrary and unfixed. A town is generally without walls, which is the character which usually distinguishes it from a city; but this does not hold universally.

Tithings, towns, and villages, have the same signification in law; and are said to have had, each of them, originally a church, and celebration of divine service, facraments, and burials; though that seems to be rather an ecclesiastical than a civil distinction. The word town or vill is, indeed, by the alteration of times and language, now become a general term, comprehending under it the several species of cities, boroughs, and common towns. A city is a town incorporated, which is or hath been the seat of a bishop: a borough is now understood to be a town, either corporate or not, that sends burgesses to parliament: other towns there are, to the number, according to Sir Edward Coke, of 8803, which are neither cities nor boroughs; some of which have the privileges of markets, and others not; but both are equally towns in law. To several of these towns there are small appendages belonging, called hamlets.

Entire vill, for H. Spelman conjectures, confounded of ten freemen, or frank-pledges, demi-villas of five, and hamlets of less than five. These little collections of houses are sometimes under the same administration as the town itself, sometimes governed by separate officers; in which last case they are, to some purposes in law, looked upon as distinct townships. These towns contained each originally but one parish and one tithing, though many of them now, by the incresce of inhabitants, are divided into several parishes and tithings; and sometimes there is but one parish where there are two or more vills or tithings. Blackfri. Com. b. 1.

We have several kinds of towns; borough-towns, market-towns, county-towns, &c. See Borough, &c.

**Town, Freedom of a.** See Freedom.

**Town, Hanse.** See Hanse.

**Town-Clerk, or Common Clerk,** an officer in the city of London, who keeps the original charters of the city, the books, rolls, and other records, wherein are registered the acts and proceedings of the city. He is to attend the lord mayor and aldermen at their courts.

**Town-Dung or Manure, in Agriculture,** that fort which is scraped up and collected from the streets and other places of large towns. This kind of manure is used in large quantities in some districts near the metropolis, as in Efllex and some others, with great success and advantage, though at very considerable expense. Mr. Hardy, near Bradford, in the above county, uses to the amount, it is said, of one waggon-load to every acre of summer fallow, at the expense, for the charge of the dung or manure only, of one guinea per acre: it is then mixed with his own yard-dung in heaps for the purpose of exciting fermentation, from a notion that it has this effect, and that having it, the benefit will be in proportion. In several other parts of the same district, the usual mode of measuring per acre, is one waggon-load of town-muck with about five times the quantity of fresh soil collected from road-sides and hedge-greens.

**Town-House.** See House.

**Town-Adjutant, in Military Language,** is an afliant to the town-major.

**Town-Major.** See Major.

**Town, Cape, in Geography,** a town agreeably situated somewhat above 32 miles from the Cape of Good Hope, in a valley, between the Table and Lion mountains. It contains about 200 houses, many of which are magnificently built.

**TOWSEND,** a town of the state of Massachusetts; 36 miles N.W. of Boston.

**TOWNSHEND,** a township of the state of Vermont, in the county of Windham, containing 1115 inhabitants; 25 miles S. of Windfor.

**TOWNSHEND, Cape,** a cape on the N.E. coast of New Holland. S. lat. 22° 13'. W. long. 209° 43'. See also VERMILLION Point.

**TOWPAAL,** a town of Meckley; 12 miles S.E. of Munnypour.

**TOWRIDGE,** a river of England, which passes by Biddeford, and joins the Taw near Appledore, in Devonshire.

**TOWY,** a river of Wales, which rises in the county of Cardigan, and runs into the bay of Caermarthan, 6 miles below Caermarthan.

**TOWYN,** or TYWYN, a small town in the hundred of Yfamaner, and county of Merioneth, North Wales, is 12 miles W. by S. from Machynlleth, and 223 miles W.N.W. from London. It is built of coarse fihilote stone, commands an unbounded view of the ocean, and is backed by a range of high mountains. During the bathing season, it is frequented by several genteel families. The town is surrounded by several populous hamlets, and respendable farmhouses. In the population return of the year 1811, the parish is stated to contain 1941 inhabitants, occupying 482 houses. Though the soil is rocky, and exposed to the influence of the western gales, yet industry has surmounted these obstacles; the marsh is converted into meadows and pastures; and corn overfloods the sterile rock and bleak shore. The church contains several ancient monuments. Gwendidydd, daughter of Brychan, and wife of Cadell, prince of Powys, about the middle of the fifth century, was buried here. In the cemetery are two rude pillars: one of them, called St. Cadfan’s stone, is shaped like a wedge, about seven feet in height, with a cross, and an inscription on each side in old British characters. St. Cadfan is supposed to have been interred in this church about the year
250; and this stone is preferred as a fragment of his tomb.

About a mile north-east of Towyn is Ynys Mac Gwn, the seat of Edward Corbet, esq.

In the vicinity of the town is a vast rock, called Craig-y-Dryn, or the Rock of Birds, so called from the numbers of cormorants, rock-pigeons, and hawks which breed on it. At its verge is a prodigious mass or stream of stones, which extends some hundreds of yards from the bottom of the rock, and is formed by the continual accumulation of fragments. The vale of Towyn extends two miles further. Near its end is a long and high rock, narrow on the top. Here stood the castle of Teberri, which extended lengthways over the whole surface of the summit, and was a fort of great strength. One apartment was thirty-six feet broad, and was cut out of the rock on two sides. The remaining walls are well built: the stones squared; the mortar, shells, and gravel are at present very rotten.—Pennant's Tour through Wales, 4to. 1783. Beauties of England and Wales, vol. xxvi. North Wales, by the Rev. J. Evans.

TOWYNMYN, a river of Wales, in the county of Montgomery, which runs into the Dowy, 5 miles N.E. of Machynlleth.

TOXANDRI, in Ancient Geography, the name of a people beyond the Scelds; or beyond the limits of Belgium, according to Pliny. The centre of their posessions is said to have been in the environs of Maefricht. In the time of Julian the Franks had an establishment in a place called by Ammianus Marcellinus "Toxandria Locus."

TOXICODENDRUM, in Botany, from τόξον, poison, and δένδρον, a tree, because the fruit is used at the Cape of Good Hope to poison hyenas. The same name has been employed in botany before, particularly for some very poisonous shrubs, reduced by Linnaeus to Rhus; see that article.—Thunb. in Stockh. Transf. for 1796, 188. Wildl. Sp. Pl. v. 4. 821. (Hyænanchè; Correa in Lambert's Cinnon. 52. Ait. Hort. Kew. v. 5. 422.)—Clas. and order, Diosc. Polyandra. Nat. Ord. Tricoce, Linn. Enphorbe, Jull.

Gen. Ch. Male. Cal. Perianth of from five to seven small, ovate, acute, hairy leaves. Cor. none. Stam. Filaments from ten to twenty, very short, crowded together at the base; anthers oval, of two cells, separated by a furrow at each fide.

Female. Cal. Perianth inferior, of seven or eight ovate, acute, erect, imbricated silky leaves, deciduous. Cor. none. Pfl. Germen superior, sessile, ovate; stye solitary, the length of the germen, triangular, cloven at the top; stigmas three, oblong, reflexed, fringed, glandular. Peric. Capsule coated, nearly globular, three lobed, three-celled, with five furrows and five valves. Seeds two in each cell, obonate, compressed, smooth, with a lateral tumid scar.


Obi. The stigmas, and cells of the fruit, often vary to four.

1. T. capense. Hyæna Poisin. Thunb. as above, 189. t. 7. Willd. n. 1. (Hyænanchæ globofa; Lamb. as above, t. 10. Jatropa globofa; Guett. t. 109. Croton; Burm. Afric. 122. t. 45.)—Found about two hundred miles from the Cape of Good Hope, in a rocky soil, on a single spot, on Wind-Eock mountains, near Elephant’s river. It was introduced into the green-house at Kew, by Mr. Francis Mafflon, in 1783, and it blossoms there from April to September, as well as in the earl of Tankettle’s collection. Mr. Lambert was informed by Mr. Mafflon, that a farmer who lived near the native place of this shrub, gained about 30l. a year by gathering the fruit, which, being beaten to powder, is used to poison the carcasses of lambs, &c. By feeding on these, the hyænas are infallibly destroyed. This is a shrub, or small tree, fix or seven feet high, with spreading branches, which appear jointed, from the scars where the footstalks have been incised. Leaves three or four in a whorl, flaked, spreading, about three inches in length, obvate or oblong, entire, emarginate, coriaceous, simple, opeque, with one red rib, and many branching lateral veins. Footstalks thick, channelled, about half an inch long. Male flowers in axillary, branched, yellowish panicles, shorter than the leaves; female ones on a separate plant, in simple, axillary, green tufts. Fruit smooth, about the size and shape of a Hickory-nut.

It has been debated between Mr. Miller and Mr. Ellis, whether our poison-ash, or winged-leaf American toxicondron, be the true Japan varnish-tree: Mr. Miller maintains the affirmative, and Mr. Ellis the negative: for the arguments on both sides, see Phil. Transf. vol. xlix. p. 866. vol. i. p. 430. p. 441. See VARNISH.

TOXICUM, τόξον, a word particularly used to express a port of poison, said to be used by the Indians to their arrows, in order to render wounds made by them incurable.

The word, in a more general sense, signifies any poison.

The Indians are suppos’d to poison their arrows, daggers, &c. with the virus of vipers, the mischievous effects of which continue a long time after the matter is quite dried up.

TOXICUS, in Botany, a name by which some authors have called the arundo farlha, of which walking-canes are made.

TOXILIS, TAxil, or Taxile, in Ancient Geography, a people of India, in the number of those who inhabited territories near the rivers Copes, Indus, Hyaudaps and Afini.

TOXOTAE, τόξον, among the Athenians, bowmen, a fort of inferior officers, or rather servants, who attended the lexicarch.

They were much like the Roman lectores: there were a thousand of them in the city of Athens, that lived in tents, erected first in the forum and afterwards in the areopagus. See LEXIARCH.

TOZER, in Geography, a town of Africa, in the country of Sahara; 50 miles S.S.W. of Gafsa. N. lat. 33° 30’ E. long. 8° 15’.

TOZZETTIA, in Botany, was so called by professor Savio of Pisa, in honour of his learned friend Dr. Octavian Targioni Tozzeti, the present possessor of the library and manuscripts of the celebrated Michelia, at Florence, and son of the botanist after whom Targonia was named, who afterwards took the name of Tozzetti; see the articles just indicated. Savio in Utr. Annal. v. 24. 50.—Unfortunately the plant thus denominated is a genuine species of Alopecurus; as professor Schayer has made it, in Fl. Germ. v. 1. 174; and as the writer of the present article has long ago shewn, in Tr. of Linn. Soc. v. 7. 245, as well as in Prod. Fl. Græc. v. 1. 437; that it is only the Phalaris urticulata of Linnaeus, but likewise his Cernuca alopecuroidea. We find it difficult to account for the mistake of Linnaeus in referring this graft to Phalaris, of which genus it has neither the habit nor characters.

TOZZI, ANTONIO, in Biography, a member of the Philharmonic society at Bologna, where he was born, and where he was a disciple of Padre Martini. In 1765 he was appointed
TOZZIA, in Botany, received its name from Micheli, in honour of the reverend father Bruno Tozzi, abbot of Vallumbrofa, who found this rare and curious plant, on the alpine heights of Tuscany, above the celebrated and romantic solitude, where his abbey is situated. This learned ecclesiastic, unlike many of his monkish brethren, delighted to adorn his Creator through his works, and was the cheerful and welcome companion of Micheli, in many of his botanical excursions, over the Italian Alps, as well as along the shores of the Mediterranean. He was a fellow of the Royal Society of London, and of the Botanical Society of France. A number of figures of rare Tuscan Orchideæ, drawn by him, may be seen in Petiver's Works, vol. i. t. 128.—Linn. Gen. 306. Schreb. 403. Willd. Sp. Pl. v. 3. 202. Mart. Mill. Dict. v. 4. Mich. Gen. 19. t. 16. Julf. 97. Lamarck Illutr. t. 522.—Clafs and order, Di dynamia Angioferma. Nat. Ord. Persfont, Linn. Ly fimachis affinis, Jull.

Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, very short, five-toothed, permanent. Cor. of one petal, ringent; tube cylindrical, longer than the calyx; limb spreading; its upper lip in two, lower in three, segments, all nearly equal and roundish. Stam. Filaments four, concealed beneath the upper lip, unequal; anthers roundish, of two lobes, each with a furrow at the base. Petil. Germen superior, ovate; style thread-shaped, agreeing with the filaments in length and situation; stigma capitulate. Perf. Capsule globoso, of one cell and two valves. Seed solitary, ovate.


Obf. Surely the affinity of this genus to Euphorbiæ, Lathraea, &c. is apparently, even without the character of the spurred anthers, indicated by Jacquin. The fruit, which in this tribe affords such admirable distinctions, is here peculiarly marked, Melampyrum alone approaching it, by the fewness, size, and shape of its seeds. Venusia is erroneously described by Linnaeus, with a single-valved capsule. We would premise to remove this genus to the Pedi:carves of Jullien.

1. T. alpina. Alpine Tozzià. Linn. Sp. Pl. 844. Willd. n. 1. Savii Enr. v. 2. 164. Jacq. Aenr. t. 165. (T. alpina lutea, alines folio, radicis squamatâ; Mich. Gen. 20. t. 16. Euphorbia lutea alinefolia, radicis squamatâ; Bauh. Pin. 234. Prodr. 1. 111. Aonyma fratis Gregorii, radice dentarie; Column. Echpr. v. 2. 49. t. 50. Dentaria buguloides, &c.; Montz. Pugil. t. 9. f. 5. 3.)—Native of moist rocky alpine places, in Austria, Switzerland, Dauphinie, Italy, and the Pyrenees, flowering in May. Mentzelius gives an interesting account of his gathering it among the melting snows, on a lofty precipitous mountain, near the source of the Iser, in 1654. The perennial root consists of numerous, fleshy, imbricated scales, and bears a solitary, herbaceous, erect, branched, square, juicy stem, about a foot high, slightly downy at the angles only. Leaves opposite, fleshy, ovate, ribbed, succulent, smooth, thinly but coarsely notched, an inch long at most; the numerous floral ones much smaller. Flowers axillary, solitary, on simple slender stalks, shorter than the leaves, bright yellow, a little drooping, perfectly two-lipped, and rather more irregular than Micheli represents them. Calyx oblique, smooth, brownish. We know of no attempt to cultivate this plant, nor would it perhaps be possible.

TRAABURG, in Geography. See DRAABURG.

TRAARBACH, a town of France, in the department of the Sarre. Its neighbourhood is a fine wine country. Opposite the town, on the other side of the Mofelle, France, after the treaty of Nimyeguen, erected a fort, called Mont Royal; but the demolition of it was made an article of the peace of Rywick; 34 miles S.W. of Coblenz. N. lat. 50° 51'. E. long. 7° 31'.

TRABAY, a river of Spain, in the province of Grenada, which runs into the sea near Muskara.

TRABEATION, TRABEATIO, in the Antique Architecture, the name with entablature; which see.

TRABENKA, in Geography, a town of Sweden, in the island of Aland.

TRABIA, a town of Sicily, in the valley of Mazara; 2 miles W. of Termini.

TRABUNACTUM, in Ancient Geography, a town of Africa Propria, on the route from Tacape to Leptis Major, between Adagumadun and Tramulduis. Anton. Itin.

TRACANA, a town in the interior of European Sar- mania, in the vicinity of the river Carcineïtes. Ptolemy.

TRACE, a mark or impression which any thing leaves behind it in passing over another.

Traces of the Brain, among the Cartesian philosophers, are those impressions, more or less deep, which, they say, sensible objects make on the fine fibres of the brain, by means of the organs of sense.

These impressions are also called traces of the object; the course of the animal spirits, they say, serves to keep them up, and to renew them.

The vivacity of the imagination, they say, arises from the prodigious quantity of traces of different objects in the brain; which are so linked together, that the spirits cannot be sent into one of them, but they run into all the rest; by which means the ideas occasioned by the application of the spirits to those several traces, are all excited, as it were, at once.

Memory, according to the same, consists in the traces which the animal spirits have impressed.

Trace of a Hare, among Hunters, is her footing in the snow; distinct from other readings, called doubling and pricking, &c.

Traces also denote the traces of ravenous beasts, as wolves, wild beasts, &c.

Traces, Lady's, in Botany. See Ophrys.

Trachea, in Ancient Geography, a name which Ovid gives to Axur.

Trachea, in Anatomy, the wind-pipe, (from ῥαχιάνς ῥας, a rough tube containing air, (rough from its cartilaginous rings), whence the Latin nare arteria. It is the tube conveying air into the lungs, and commencing at the root of the tongue. See Lungs.

Tracheae, Wounds of. See WOUNDS.

Tracheae, in Vegetable Physiology, is the appellation given by Malpighi, Grew, &c. to the large spiral-coated vesicles of plants; which, being generally found filled with air only, are likewise termed air-vesels. The discoveries of Dr. Darwin, Mr. Knight, and others, have shown them rather to be sap-vesels, and that the empty state in which they are usually found, is owing to their contents having been expelled on diffusion, by the elasticity and irritability of their coats. Such is known to be the fact with regard to the arteries of animals. We have explained the nature of these vesels, and their functions, under the articles Circula-
Circulation of Sap, Leaf, and Spiral Vessels, the latter being now their most usual denomination. It is preferable to any of the above, as not involving any theoretical opinion.

TRACHEAL ARTERY, in Anatomy, a branch of the right subclavian, running up from it in a winding course, along the afferent artery, to the glanulose thyroides and larynx, depositing small arteries to both sides; one of which runs to the upper part of the caputula. The tracheal artery may likewise be called gularis inferior. See Artery, and Lungs.

TRACHELAGRA, formed of θαξιων, neck, and φυτεύς, flax, a term used by some medical writers to express the gostr in the neck.

TRACHELUM, in Botany, is not derived, as De Theis supposed, from ταξιων, rough, however applicable that sense may be to the plants to which the name was originally applied, our larger Campanula. The word comes from ταξιων, the neck, being synonymous with the Latin Cervicaria, and the English Throatwort. Old writers tell us, the plants so denominated were believed to be useful in complaints of the neck, or throat; whence also originated another of their synonyms, Uvularia. Tournefort, alluding to these reputed virtues, derives the above name from trachea arsissa, or afferent arteria, the wind-pipe, which is certainly not its real source. Being superfluous as a synonym to Campanula, he, as well as Linnaeus, retain Trachelium for a neighbouring genus, distinguished by the long tube, or neck, of its corolla.—Linn. Gen. 89. Schreb. 119. Willd. Sp. Pl. v. 1. 926. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 1, 355. Thunb. Prodr. 38. Jaff. 165. Tourn. t. 50. Lamarck Ill. t. 125. Gaertn. t. 31. Claus and order, Pentandria Monogynia. Nat. Ord. Campanaceae. Linn. Campanulae, Jaff.

Gen. Ch. Call. Perianth superior, very small, in five deep segments, permanent. Cor. of one petal, funnel-shaped; tube cylindrical, very long and slender; limb small, spreading, in five deep, ovate, concave segments. Stam. Filaments five, capillary, nearly the length of the corolla; anthers simple, oblong. Pjfl. German inferior, roundish, with three angles; style thread-like, twice as long as the corolla, rather swelling upward: stigma capitate, globose, slightly three-lobed. Peric. Capsule roundish, bluntly three-lobed angular, of three cells, burbling by pores at the base. Seeds numerous, minute.


Obs. Linnaeus himself corrected in his Systena Nature the error in his Genera, of the single-celled capsule. The remark subjoined in the last-mentioned work, of some bilocular species, properly belongs to the preceding genus, Phytonia.

1. T. cæruleum. Blue Throatwort. Linn. Sp. Pl. 243. Suppl. 143. Willd. n. 1. Ait. n. 1. (Trachelis azuro umbellifera; Pon. Bald. 44. Valeriana cærulea, urtica folio; Barr. t. 683, 684.)—Leaves ovate, serrated. Corymb compound. Native of shady shady places, in Italy, Spain, and Barbary. Frequent on the ancient walls of Rome, flowering in the spring and summer. It may be kept for many years with us in a greenhouse, though usually considered as a hardy biennial. The root is tapering, white, with many fibres. Herbage smooth, dark green, about two feet high. Stem roundish, often branched, leafy. Leaves alternate, ovate, acute, veiny, an inch or two long, and full half as broad, sharp, and sometimes very deeply, serrated. Feetfalls linear; the upper ones half the length of the leaves; lower longer. Flowers very numerous, of a fine blue, in a terminal, coriaceous, level-topped tuft, or panicel, with awl-shaped bracteas, in aspect, though not in colour, resembling a Valerian.

2. T. diffusa. Slender Shrubby Throatwort. Linn. Suppl. 143. Willd. n. 2. Thunb. Prodr. 38. Leaves awl-shaped, erect. Stem panicled, with divaricated branches. Found by Thunberg, at the Cape of Good Hope. Mr. Monf. sent it in 1787 to Kew, where it is a green-pale, flowering in August. Stem a foot or more in height, woolly, much branched in the lower part, the branches erect, straight, round, leafy, smooth, or very minutely downy. Leaves spinous, slender, an inch long, very narrow, revolute, entire, sharp-pointed, nearly or quite smooth. Flowers blue, with a pale tube, small, solitary at the ends of the numerous, widely spreading or deflexed, branches of the flender, rigid, smooth panicul.

3. T. tenuifolium. Slender Fringed Throatwort. Linn. Suppl. 143. Willd. n. 3. Thunb. Prodr. 38. Leaves linear, flat, recurved, fringed. Stem branched. Flowers lateral.—Brought by Thunberg likewise from the Cape, but as yet a stranger to our gardens. The long wooly root bears a bushy wooly stem, a few inches high, divided from the bottom into many branches, clothed with crowded, narrow, recurved, sharp-pointed leaves, half an inch long; strongly fringed at the margin; flat above; keeled beneath; often somewhat downy. Flowers numerous, axillary, solitary, feathery, slender, apparently white or yellowish, except the tips of the corolla. We must rely on the authors cited for the determination of the genus. The style does not project out of the flower. The germen is inferior.

TRACHELUM, in Gardening, contains a hardy herbaceous plant of the perennial kind, of which the species cultivated is the blue throatwort (T. cæruleum). It is a plant that is perennial in its nature, being very lasting in soils which are dry and not of a rich quality, but not to in the contrary fort.

Method of Culture.—It is raised from seeds, which should be sown in the autumn when well ripened, or in the spring, in a bed or border of close mould. And when the plants are two or three inches in height, they should be set out in narrow rows six inches apart, to remain till the following autumn, when they should be planted out where they are to remain.

These are flowering perennials which may have their seeds sown in the crevices of old walls, ruins, and rockworks with much effect and advantage, as the plants contain several years, and display many flowers.

They afford ornament in the above sort of works, and other situations where the earth is poor.

TRACHELO-MASTOIDEUS, in Anatomy, complexus minor; a small narrow muscle, situated at the posterior and lateral part of the neck, and extending from the mafloid process to the transverse process of the vertebrae. B-hind, it is covered by the splenius, and the transversalis coli, to which it is connected: in front, it covers the complexus, the obliqui capitis, the posterior extremity of the digastricus, and the occipital artery. Its inner edge is close to the complexus, and is sometimes united by a muscular flip to the longissimus dor. The outer edge is fixed by small tendinous and fibrous slips to the transverse processes of the four last cervical vertebrae; and is unattached above. The inferior extremity of the tracheo-mastoideus is slender and pointed, and fixed to the transverse process of the seventh cervical vertebra, or sometimes of the first dorsal; thence it ascends perpendicularly, growing thicker and broader to its upper end, which is fixed to the back of the mafloid processes in front of the splenius. It is attache to the
the vertebral processes by small tendons, which produce muscular slips united in the body of the muscle; a flattened tendon is the medium of infection in the head. When the right and left muscle act together, they restore the head, after it has been bent forwards, and they carry it backwards. The muscle of one side inclines the head and neck laterally.

**TRACHELOPHYMA**, a swelling of the thyroid gland. See Bronchocele, and Thyroid Gland.

**TRACHELOS**, a word used by some anatomical authors to express the neck.

**TRACHENBERG, or Drachenberg, in Geography**, a principality of Silecia, bounded on the N. by Poland, on the E. and S. by the principality of Oels, and on the W. by Wohla. It was formerly a part of Oels, but erected into a distinct principality, in the year 1741, by the king of Prussia, in favour of the count of Hazfeld and Gleichen, who was made a prince of the empire, by the emperor Francis, in 1748.

**TRACHENBERG, or Straburke, a town of Silecia, and capital of the principality of the same name**; 14 miles W.S.W. of Milititsch. N. lat. 51° 28'. E. long. 16° 50'.

**TRACHEOCELE**, an enlargement of the thyroid gland. See Bronchocele, and Thyroid Gland.

**TRACHEOTOMY, (from τράχηις, the wind-pipe, and τομή, to cut,) in Surgery**, denotes the operation of making an opening into the wind-pipe.

When a foreign body has entered the trachea, the only means of relief consists in making a longitudinal incision through the skin and cellular substance of the neck, in order to expose the wind-pipe, and let it open in the same direction. Several of the old practitioners conceived the propriety of this operation, which Junigers, in his "Conspexitii Medicina Chirurgica," preferred in the most positive terms.

How, indeed, would it be otherwise possible to put an end to the suffocation and convulsive cough, which the extraneous substance produces? Few practitioners, however, have ventured to do the operation. In the year 1650, the performance of it was recommended by Bonnet, upon a child seven years of age, who, in eating some rice-foup, swallowed a small bone, which passed into the trachea. The young patient pointed out with his finger the place where the foreign body had stopped, and which was exactly opposite the middle of the throat. A physician, who was consulted, gave it as his opinion, that the operation was improper, either because he was not convinced of the presence of the bone in the trachea, or because he thought that it could not be taken out without exposing the child to a certain death.

At the end of five days the boy died, and the trachea having been opened, the extraneous substance was taken out of it with the greatest ease. Raw and Heiler also successfully extracted foreign bodies from the trachea; the former, a piece of mushroom, which had been swallowed with some foup; the latter, a bean, which had fallen into the wind-pipe.

Louis was not equally fortunate, in a cafe where the operation would have infallibly saved the patient's life. A child seven years old, like that of Bonnet, was amusing herself with throwing up small dry beans, and catching them in her mouth. She supp ted the she had swallowed one of them; but was instantly seized with a difficulty of breathing, and a most fatiguing convulsive cough. It was assessed that the bean had lodged in the throat, and every thing was tried, which was thought to be likely to make it descend into the stomach, or cause it to be ejected from the mouth. The symptoms, however, recurring from time to time, with the addition of convulsions of the limbs. The cafe had gone on in this manner two days, when Louis was consulted. He found the child sitting up in bed, leaning upon her two arms, and breathing with difficulty. When he asked her where she felt any thing the matter, she placed her left fore-finger upon the trachea, betwixt the larynx and the sternum. The consideration of the various circumstances of the case made him conclude, that the bean had passed into the wind-pipe, and that the practice of bronchotomy was indispensible necessary for its extraction. Others, who were called into consultation, entertained a different sentiment. M. Louis could not bring them over to his opinion. The opposition which they made increased heavily, as the child appeared for a time a little better. But at length a new symptom occurred, which no one had yet observed, and which two hours previously did not exist. The child was evidently affected with an emphysematous swelling on each side of the neck above the clavicle. She took an emetic, which only had the effect of disturbing her. The third day she seemed more tranquil, though her respiration was always difficult. In the evening she died. When the trachea was opened, the bean was seen lodged at the upper part of this tube, whence it admitted of being most easily extracted with a pair of forceps.

The long intervals of cafe which the patient had, contributed particularly to throw doubts on the presence of the extraneous body in the trachea. It was supposed, that it would necessarily have kept up there a continual irritation, which could not have allowed of the alternations of suffering and cafe which took place. But the fact is, the body was smooth, and it had defended below the glottis, the feasibility of which is doubleless greater than that of the trachea, to that it only produced urgent symptoms, when it was forced by the action of respiration against the lower part of the glottis, whose ligaments it hurt, and whose aperture it closed in such a manner, that the air was no longer capable of passing through it with its wonted freedom. It is to this cafe that the emphysema, which has been spoken of, must be imputed; for the air being urged back into the lungs, must have ruptured some of the bronchial cells, inflating itself into the cellular texture of this viscus, and extending from below upward to the lower part of the neck, the integuments of which were elevated by it.

This symptom is truly pathognomonic. It was also imagined, that if the extraneous substance had been in the trachea, it would have cau ed more quickly a fatal suffocation; but there are many cafes on record, proving that patients have survived the accident a long while. It is possible the child, and another mentioned by Marcellus Donatus, did not die until the fifth day. The only symptom which the last experienced, was a flight cough, with a little irritation. The cough which occurred before death was attended with efforts, in which the child turned livid, as if it had been strangled with a rope. Other children also, who have swallowed beans, and whose cafes are related by Louis, died; one on the eighth or ninth day after the accident; the other at the end of three weeks, and after having in the interim followed the ameliorations of their age.

Perhaps it may be apprehended, that a foreign body, after its entrance into the trachea, will defend by its weight to the bottom of this tube; or, that after the proper measures are made, its extraction will be attended with too much difficulty; but to these two objections, experience gives the most decisive answer. In almost all cafes of this sort, the foreign body has been found opposite that part of the trachea which would have been opened, if tracheotomy had been performed; and the experiments relating to this operation which have been made upon living animals, for the
TRACHEOTOMY.

purpose of judging of the facility or difficulty of extracting foreign bodies from the trachea, have shewn, not only that they remain at the upper part of the trachea, (whither they are forced by the air which endeavours to find a way out from the lungs,) but that they even of themselves come out of this tube, and are thrown out to a distance by the same cause, immediately a sufficient opening for their escape has been practised by the surgeon. We are indebted for such experiments to M. Favier, then a student in surgery at the Hotel des Invalides, and since member of the college of surgery at Paris. A large dog, which was muzzled, had an incision made under his jaw, capacious enough to let the tongue be drawn out through it. M. Favier took an opportunity, when the animal was in the act of inspiration, of introducing into the glottis an extraneous substance of an irregularly spherical shape. The dog was feized with convulsive motions, which gave reason for apprehending immediate suffocation; but symptoms abated sufficiently, to allow the operation of tracheotomy to be deferred six hours. The wind-pipe was then opened by a longitudinal incision, which divided three of its cartilaginous rings. Scarcely was the bifurcous withdrawn, when a strong expiration propelled the foreign body out of the wound; and as soon as it was a second time introduced, it was expelled again.

The experiment was repeated ten times with the same result. M. Sabatier informs us, that he had seen M. Favier introduce into the wind-pipes of other dogs, extraneous substances of every description and figure, and amongst other things nails and small leaden balls. These were even pushed very far down with instruments; but notwithstanding this, they were thrown out with force as soon as they were left to themselves.

The difficulty of finding and extracting foreign bodies which are lodged in the trachea, must therefore be no longer urged as a pretext for omitting the performance of tracheotomy in all cases in which there is imminent danger of suffocation, in consequence of the presence of those bodies. If, after the integuments and trachea have been divided, they should neither make their escape nor present themselves at the opening, the surgeon should at once endeavour to find them with a pair of forceps, or any other instrument calculated to facilitate their extraction. All that now remains to be done, is to compress the wound in the most simple manner, and to promote its cicatrisation by the usual means. The operation which we have been speaking of, may be successfully resorted to in some other cases. When the function of respiration is materially impeded in inflammatory quinsies, or by the preffure which a foreign body in the esophagus makes on the trachea, and which foreign body cannot possibly be extracted, nor pushed down into the stomach, the patient's life may be saved by making an opening into the trachea or larynx. The necessity for such an operation was recognized in the very infancy of the art. With the same view, Hippocrates advised the introduction of a tube into the throat. This bad practice prevailed until Aesclepiades, who propofed the method of making an incision into the larynx of patients who were in danger of suffocation. This operation, however, met with opposition. Calibus Aurelianus considered it as fabulous and absurd. But it met with advocates in several other skilful practitioners, such as Antius, Orbisius, Ælius, and especially Paulus Ægineta, who defendes it in the following terms.

"The incision must be made into the trachea, under the larynx, about the third or fourth ring. This situation is the most proper, because it is not covered with flesh, and the vessels are not near it. The patient's head is to be carried backward, so that the wind-pipe may project more forward. We make a transverse section between two rings, so that the cartilages may not be wounded, but only the membrane which joins them together."

The Arabians, who succeeded the Greeks, were also advocates for tracheotomy. It does not appear, however, that they often practised the operation, on account of the dangers by which they supposed it was liable to be followed. Since the revival of learning, the possibility of doing it has been more generally admitted. The subfrequent frequent examples of wounds of the throat, where the trachea has likewise been divided, have now produced a conviction, that this canal may be successfully opened in such cases as require it. Fabricius ab Aquapendente was the first who propofed the operation in strong terms. He judiciously examined and considered every part of it, and was fully aware of its advantages. The cannula which has been employed for placing in the opening made in the wind-pipe, seems to have been invented by him. He recommends it to be introduced between two of the rings; to have a flat shape; and to be furnished with wings, by means of which it may be fastened in its place. Its length should not be great, lest it should reach too far, and hurt the back part of the wind-pipe. Laily; Fabricius advises it to be worn only during the impediment to respiration, since as a foreign body it may do harm, and cause pain and coughing.

Cafferius, his pupil, also carefully treats of bronchotomy. He describes the manner of performing it. By the first incision, the skin is to be opened longitudinally over the trachea. By the second, which is to be made betwixt the mucus going up to the larynx, the wind-pipe itself is to be brought into view. A transverse opening is then to be made in it below the thyroid gland. Morgagni gives much credit to this author for having first noticed this gland, which in its enlarged state may materially increase the difficulty of the operation. Cafferius approves of the cannula recommended by Fabricius, which he thinks ought to be made of silver, of a flat form, curved, every where pierced with small holes, and fastened to the neck with a ribband. He was quite apprized of all the inconveniences, which Fabricius points out as being liable to attend the employment of this instrument.

While these two skilful practitioners professed themselves to be in favour of bronchotomy in cases where the necessity for it exists, a French surgeon, M. Habicot, endeavoured to bring the operation into repute. The treatise which he has publifhed upon this subject, is entitled, "Quelion Chirurgicale, par laquelle il eit demontre que le Chirurgien doit affurer son pratiquer l'Operation de la Bronchotomie, vulgairement dite Laryngotomie, ou Perforation de la Flinte, ou Thyro." This treatise made its appearance in 1620. Besides the reasons upon which this author supports his observations, he relates several cases in which bronchotomy faved the patients' lives. The first is that of a young girl, who was shot in the throat. The ball, after having broken the larynx, and particularly the left side of the thyroid cartilage, made its exit below the inferior angle of the scapula. So considerale a degree of swelling followed, that the patient was almost suffocated. Habicot introduced into the trachea a leaden tube, which was worn three weeks, until the inflammation had subsided. The patient got well.

The second perfon upon whom he performed tracheotomy, was a young man, who had received twenty-two wounds in the head, face, throat, hands, arms, chest, back, yard, and thighs. These were done with a sword, knife, and pen-knife. In the evening of the same day, Habicot perceived that the patient was nearly suffocated in consequence of the inflammation and swelling of the throat. He was therefore determined
TRACHEOTOMY.

terminated to make an opening in the trachea, below the wound, opposite the upper part of the larynx. The respiration was immediately effablified again, and the wound was kept open with a groove; and until the tumefaction of the larynx was diminished. The cure was complete in three months. M. Louis was of opinion, that, in these two cases, the cannula only served to keep the lips of the wound in the skin apart, because, in the first, the thyroid cartilage was broken so extensively, that it could hardly be supposed to form an obstacle to the passage of the air; and because, in the second, the wound of the trachea had allowed the air to enter and come out again with ease, without the assistance of any tube.

We find in Habicot's effay a third instance in which tracheotomy was successfully performed. 'A lad, fourteen years of age, who had heard that, when swollowed, did no harm, having fold some merchandise at Paris, for which he had received about nine francs, wrapped them up in a piece of cloth and swallowed them, for fear of being robbed. But as they could not pass through the narrow part of the pharynx or oesophagus, his face became so frightful and deformed with swelling and blackness, that his companions could not recollect him. Hence, having caused him to be brought to my house, and not being able to make him void, nor get the obstacle into his stomach, so closely was it fixed by the swelling of the throat; and considering that he would be suffocated, I first made a favourable prononcement, and then performed bronchotomy, which being finished, he revived so rapidly from the violence of the air, that the by-standers were alarmed; but the tumour and unfaavourable colour of the face having disappeared, I assured them that he would recover,' &c. The foreign bodies were then pulled down into the stomach with a leaden probe, and thence were discharged about a week afterwards at different times with the faeces. As the patient was so promptly relieved, probably Habicot never thought of keeping the wound open with a cannula, but endeavoured to heal it as expeditiously as possible. In the two other cases, he employed this instrument, which he has described in the last chapter of his treatise.

Since Habicot, and before the end of the seventeenth century, the testimonies to be found in favour of tracheotomy are very numerous; but no one did anything to perfect the operation until Decker, who, in 1675, proposed to practise it with a small trocar, armed with a cannula. The method is more simple, more easy, and subject, as some have conceived, to fewer inconveniences, if the trachea be not pierced until this tube is exposed by an incision made in the anterior and inferior part of the neck, between the mucus and the hyoid bone, and under the larynx. The author who first proposed bronchotomy in the case of inflammatory quinsy, thinks that it may be done in a more expeditious manner, without pain, and in a way more calculated to procure a speedy cure, than the mode which was previously in use. This plan consists in performing the operation by one puncture, so that the laceration at once opens the interguments and the interface of the cartilages of the trachea, and the instrument is not withdrawn before the laceration of the probe, which is to serve as a conductor for the cannula. The advantages which Dionis ascribes to this method would merit the greatest attention, were they not counterbalanced by the inconveniences which result from it. There are not many subjests, whose necks are so entirely destitute of feel that the interface of the rings of the trachea can be felt. This tube, whose figure is cylindrical, easily slips under the fingers, and the change of position may render Dionis's manner of operating extremely difficult. The operation is not without danger of wounding the posterior parieties of the trachea, because one cannot penetrate into its cavity, through the thickness of the integuments and cellular substance, without using a degree of force which it is difficult to regulate with precision. Lastly, when the cannula is put into the wind-pipe, this canal rifes, and descends so considerably in various circumstances, and especially in the action of deglutition, that the instrument must be liable to slip out of it. Verdu, before Dionis, had made some remarks on the posture of the patient during the operation. His head was extended back, and the integuments were pinched up into a transverse fold before being divided. Verdu observed, that by inclining the head back, the difficulty of breathing would probably be increased, and that when this position was adopted, the integuments of the neck could not easily be pinched up into a fold. For such reasons, he thinks that posture best, in which the patient breathes with most freedom.

Tracheotomy had been practised only with a view of relieving the suffocation arising from the quinsy, and that which is produced by the pressure of a foreign body in the oesophagus upon the trachea. Detharding, professor of medicine at Rotrock, published in 1714, a dissertation, entitled "De Methodo subveniendi submeris per Laryngotomium," the object of which was to prove, that this operation is necessary in order to remove drowned persons. The principle with which he sets out is, that drowned perfons cannot breathe when taken out of the water, because the epiglottis is in contact with the glottis, and closes this opening so closely, as to leave no passage at all for the air. But some observations, carefully drawn up by M. Louis, have proved that the glottis is open and free in drowned persons, as well as in perfons who have perished of any other kind of death, and that their death is caused by the water which they have forcibly inspired, and which mixing with the air and mucus with which the bronchial and bronchial cells are naturally filled, obliterates and blocks up these organs, so that the air can no longer enter them. But if Detharding has been mistaken upon this point, he has not been deceived in regard to the advantages of tracheotomy in every other circumstance, and the little risk there is in practising it. He states, that the integuments, and the membrane which unites the rings of the trachea, being the only parts which ought to be cut, no vessels nor nerves of importance need be wounded.

Though there are no nerves of considerable size in the track which the incision must necessarily follow, the same observation cannot be made in respect to the blood-vessels. The thyroid gland sends down, to the left subclavian vein, which, after having ramified on its anterior surface, unite into two trunks, the left of which most commonly passes in front of the trachea, at the lower part of the interface, which lies between the sternohyoid and mucus. In the greater number of subjects, these trunks only form one at the place of their termination. Sometimes they continue separate. Sometimes, also, one of them terminates in the left subclavian vein, and the other in the right. The left may be injured in dividing the cellular substance which covers the trachea. This canal itself has likewise its own vessels, which may be cut, and bleed a good deal. This was
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in the event of the trocar slipping. This risk may be avoided by fixing the trachea well, and particularly by using some instruments, which were invented by Bauchot, an old surgeon-major of the French navy. They consist of a cutting blade mounted on a handle, to which is adapted a flat cannula, the opening of which has a rim furnished with two small rings, and a fine body lodged in the cefophagus, which body can neither be extracted, nor pulled down into the stomac; and when an extraneous substance has fallen into the wind-pipe. In quinines, and in cases of foreign bodies lodged in the cefophagus, the operation consists in making an opening, through which the air can enter to the lungs. In the case of a foreign body in the trachea, an incision is required, which divides longitudinally several of the cartilaginous rings of this tube, which is of a fize proportioned to that of the substance to be extracted.

When merely an opening is required for the passage of the air, the surgeon may proceed in several different ways. In the oldfet method, the patient was placed in the recumbent posture, with his head supported on pillows, so that the skin of the front and lower part of the neck could be pinched up into a tranverse fold, of which one end was held by an assistant, the other by the surgeon himself with his left hand. This fold was divided from above downwards, and the incision was continued from the lower part of the larynx to the front of the upper edge of the sternum. The cellular substance between the sternio-hyoid and sternio-thyroid muscles, was next divided down to the fore-part of the thyroid gland and trachea. This canal being exposed, the surgeon puts his left-hand index-finger between two of the cartilaginous rings, and then passing along his nail the instrument of which he has made choice, he makes a tranverse incision in it. When he judges a cannula indispensible, Bauchot's instrument is the bell, the perforating part of which should be taken out immediately the trachea is divided, so as to leave only the tube, which is to be fixed in its place with suitable ribbands passed through the little rings. In this manner, there is no risk of blood falling into the trachea, because the wound is filled by the instrument with which it is made. If, on the contrary, the tube be considered useless, the surgeon should use a lancet with rather a long point.

Instead of practising tracheotomy, or bronchotomy, surgeons have been recommended to perform the operation of laryngotomy, as more safe and easy. The lower edge of the thyroid cartilage, and the upper edge of the cricoid cartilage, are connected together by a thick ligamentous membrane, covered in front merely by the integuments. This anterior part of the crico-thyroid membrane is also immediately opposite the highest and broadest portion of the cavity of the larynx, directly below the glottis, so that it is not only easy to bring it into view by a superficial small cut through the skin and cellular substance, but the incision may be made longitudinally, by which its union will be facilitated, and there can be no risk of hurting the opposite side of the larynx. In France, this mode of operating has had several distinguished advocates, and the celebrated Vic-d'Azyr Communicated to the Société de médecine some observations concerning it.

In whatever manner the operation may have been practiced, some attention must be paid to the dressing of the wound. If the folie object has been to restore respiration during the short period of time necessary for the removal of a foreign body lodged in the cefophagus, there is no reason why the wound should not be speedily healed. Supposing the trachea, or larynx, to have been opened by a transverse incision, the patient's head must be inclined forwards, and the edges of the longitudinal wound of the skin brought together. When the operation has been practised to relieve the suffocation caused by quinifey, the passage of the air through the wound must be promoted, until the diminution of the inflammation of the parts about the throat allows the air to pass the normal way. The cannula which is used must be covered with gauze, in order to prevent the entrance of extraneous substances in the atmosphere, or bits of the dressings. The wound should be covered with pletgets and compresses, and the whole supported with a suitable bandage.

Such are at least the means recommended by methodical writers; but Sabatier observes, that experience has not confirmed their propriety. To some practitioners she has proved, that it is difficult to keep the cannula in its place; to others she has shewn, that the tube becomes filled with mucus, by which it is rendered useless. Sabatier even thinks, that it might be better to omit altogether the employment of the cannula, and nothing would be more easy, were laryngotomy performed as above explained. The superficial small wound required in this operation, may be left uncovered with dressings, and no inconvenience will follow. Sabatier's Médecine Opératoire, tom. iii. p. 25, &c. edit. 2.

TRACHICHTHYS, in Ichthyology, a genus of fishes, first described by Dr. Shaw in the "Naturalist's Miscellany," the characters of which are as follows: head rounded in front; eye large, mouth wide, toothless, defending. Gill-membrane furnished with eight rays, of which the four lowermost are rough on the edges. Scales rough; abdomens mailed with large carinated scales. There is one species; viz.

T. AUSTRALIS, OR SOUTHERN Tr. With mailed abdomens; a native of the coast of New Holland. Its color is a bright pink-ferruginous, or fair reddish-brown. The middle part of all the fins of a deeper colour than the rest of the animal, and the edges lighter, or of a yellowish tinge.

TRACHIDNA, a name given by Jovius and some others to the draco marinus of the old authors, called by us the scraper.

TRACHINIA, in Ancient Geography, a canton of Thessaly, in the Pthiotides, near Mount Oeta. It is also called Melide. In this country was the town of Heracles, since called Heraclea Trachiniae. They did not.

TRACHINLÈ PETRA, high and inaccessible rocks which bordered a plain near the Malae gulf. They surrounded the Melide. Between these rocks and the sea flowed the river Melas, whence the territory had its name.

TRACHINUS, in the Linnean system of Ichthyology, the name of a genus of fish of the order of the Anguilli: the characters are, that the head is compressed and not smooth; the membrane of the gills has fix rays, and the lower lamina of the operculum is serrated; and the anus is near the breast. Linnaeus mentions one species, viz. the Draco. Artedi refers the Uranophis also to this genus.

The name is originally Greek, the word meaning signifying rough, sharp, or prickly. It was given to this fish from
the rays of its back-fin being remarkably rigid, and sharp like prickers.

Trachinus Lapis, in Natural History, a name mentioned by the writers of the middle ages, as possessing many great medicinal virtues. It seems to have been a kind of lapis nectaris, being described as bright, but not transparent, and being of two kinds, the one blackish, and the other green.

Trachis, in Ancient Geography, a town of the Thesaly, said to have been built by Hercules at the foot of Mount Oeta, towards the mouth of the river Apeus. It derived its name from its mountainous and rugged situation. On the site of this town, which is mentioned by Homer, the Lacedaemonians built another, to which they gave the name of Heraclae.

Trachoma, (from τράχυς, rough,) a roughness of the inner surface of the eyelids, caused by hardened mucus and scabs. It implies the same sort of disease as the Phthiriasis; which see.

Trachon, in Ancient Geography, a plain which bounded the territory of the king of the Cimmerian Bosphorus, on the side of Scythia.

Trachones, the name of two hills situated beyond the town of Damalcus, in Syria. Strabo.

Trachonitae Arabes, Arabs who inhabited Sacca, at the foot of Mount Aladamus. Ptolemy.

Trachis, or Trachin, in Geography, a town of Moesia, in the circle of Brunn; 21 miles S. of Brunn.

Trachurus, in Ichthyology, the name of a fish of the scorber kind, called in English a scad, and by several authors, scomber, scombrus, and acanthus marinus. See Scomber.

Trachurus Brasiliensis, a name given by Mr. Ray to a fish of the scorber kind, the scormer corvola of Linnaeus, known among writers on these subjects, by its Brazilian name guara-toba.

Trachynotia, in Botany, a genus of grasses, so named by Michaux, from τράχυς, rough, and νότιος, the back, because the glumes are rough in that part.—Michaux Bot. Rar. Amer. v. 1. 63.—This is the same plant with Linnetis de Richard and Persoon, adopted by Pursh, v. 1. 25 and 59, and referred to Triandra Monogynia, and thus defined.

L. Ch. Spike lateral-flowered; flowers imbricated in two ranks. Calyx of two valves; one smaller than the other. Corolla of two valves, pointed, compressed, keeled. Style elongated.—Three species are described.


Pursh.

2. T. cyprinoides. Michaux ibid. (Linnetis cyprinoides; Pursh n. 2.)—"Somewhat glaucous. Leaves very long. Spikes numerous, alternate, turned one way. Calyx pointed, awned; its keels prickly."—"Frequent on rocky ledges of North America. Perennial, flowering in July.

Pursh.


Pursh.

These are very coarse harsh grasses; the leaf is said by Clayton to have a rancid smell. We mention them here, because Linnetis is accidentally omitted in its proper alphabetical order. Which of the two above names is to be preferred, might require consideration; but we have already declared under Daublys that we do not see the necessity of dividing that genus. If otherwise, our British D. flabella, Fl. Brit. 110. Engl. Bot. t. 38o. Knapp. Gram. t. 63, must be associated with the above three American species.

Trachys Mons, in Ancient Geography, a mountain of the Peloponnesus, in Arcadia. Pausanias.

Tracing, in Husbandry, a term used by our planters for the method of preparing the maize, or Indian corn. This being a large grain, is apt to spoil, if not carefully preferred.

Some thresh out the corn as soon as the ears are gathered, and lay it up in holes of the earth, which are their granaries; but those who have not opportunities of doing this, trace it, that is, they leave it in the ear, and weave, or fallen together a great number of ears by the ends of the hulks: these traces of corn they hang up within doors, on such supports as will keep them from one another; and they will, in this manner, keep good the whole winter.

This is a method of ours introducing; but their own, of burying the clean corn, was at least as good, and was the same practised by the Egyptians of old, and by all the widely nations of the East at this time. But whether we have improved their husbandry in this particular, or not, it is certain that we have greatly assisted them in the planting of this corn, which we do by the plough, instead of the troublesome method they had of doing it with the hoe. The manner of our planting it is this: we plough single furrows the whole length of the field, and at about six feet distance one from another; we then plough others across at the same distance, and then, wherever the furrows meet, the corn is thrown in; it is then covered either by the hoe, or by running another furrow behind it with the plough; and when the seeds begin to overtop the corn, they plough the spaces again, and by this means destroy and turn in all the weeds, and give the earth a flaring, that greatly assists vegetation.

The famous method of horse-hoeing husbandry, so celebrated by Mr. Tull, in a book written on that subject, is no other than the bringing home this method of our American planters, on the culture of the maize, and applying it to our European corn. The Indians, and our planters, join in the method of raising a hill of earth round every flake of the maize; and when the ground is poor, or out of heart, they bury two or three hills, of a kind called by them the alofe, under every hill; and by this means they have a crop double to what would otherwise have been produced. The English have learned this manure from the Indians; and in New England, where they are near the fishing-flages, they bury the heads and garbage of the oaks, which succeed as well as the alofe, and cools nothing but the carriage.

The lands on which the maize or Indian corn has grown, are as well fitted for our European corn as if they had been laid fallow. The reason of this is, that, plants of the Indian corn standing at fix feet distance from each other, the far greater part of the ground has remained unoccupied, and at the same time has had the advantage of often ploughing to kill the weeds, which is a benefit equal to that of dung and reft. All this, though it tends to prove the doctrine of hohe-oeing husbandry not new, yet it strengthens the system greatly. Phil. Trans. No. 142.

Tracing, among Miners. See Training.

Tracing-Line, in Sea Language, a small cord generally passing...
passing through a block or thimble, and used to hoist up any object to a higher station, in order to render it less inconvenient. Such are the tracing-lines of the awnings, and thro' of the yard-tackles, which, by hanging down in a cavity or bight, would be awkward and incommmodious. Falconer.

Track, in Geography, one of the Nicobar islands. N. lat. 7° 30'. E. long. 94° 6'.

Track of a Ship. See Wake.

Track-road, the same as towing-path; which see.

Track-scout, a vessel employed to carry goods or passengers up and down the rivers or canals in Holland, and the countries bordering on the Baltic sea. It is usually tracked by a horse, who trots along the margin to a limited distance, after which he is relieved by another. Falconer.

Tracking, denotes the art of pulling any vessel or floating body along the stream of a canal or river, by means of a rope extending from the vessel, &c. to the adjacent shore, and drawn along the banks of the river by men or horses. Whence Track-scout; which see.

Tracopitis, in Ancient Geography, a rude and mountainous country of Palestine, on the other side of Jordan. M. d'Anville places it at the bottom of Anti-Libanus, inclosed within several branches of this mountain, extending towards the S.E. among which is found mount Hermon: the principal place was Ænon.

Tracossos, in Geography, a town of Spain, in the province of Leon; 30 miles W. of Zamora.

Tractus, Tractus, Tracto, or Tractatus, does also signify a small treatise or written discourse upon any subject.

Tract, in Hunting, denotes the trace or footing of a wild beast.

Tractation, Drawing, the act of a moving power, by which the moveable is brought nearer to the mover, called also attraction.

Tractation, Line of, in Mechanics. See Wheels.

Tractoriae, among the Romans, were diplomas or tickets given by the emperor to such as he sent into, or called out of, the provinces; by which they were entitled to the use of the public poll, and to be maintained at the expense of the government.

Tractrix, in Geometry, a curve line, called also catenarius; which see.

Trade, Traffic, Commerce, the act, or art, of dealing, buying, selling, exchanging, &c. of commodities, bull, money, &c.

For the origin, progress, &c. of trade, see Commerce and Navigation.

It is observed by Dr. Smith, that all wholesale trade, all buying in order to sell again by wholesale, may be reduced to three different sorts: viz. the home trade, the foreign trade of consumption, and the carrying trade. The home trade is employed in purchasing in one part of the same country, and selling in another, the produce of the industry of that country; and it comprehends both the inland and the coasting trade. The foreign trade of consumption is employed in purchasing foreign goods for home consumption. The carrying trade is employed in transferring the commerce of foreign countries, or in carrying the surplus productions of one to another.

The capital that is employed in the first kind of trade generally replaces, by every such operation, two distinct capitals, that had both been employed in the agriculture or manufactures of that country, and thereby enables them to continue that employment. When it lends out from the dependence of the merchant a certain value of commodities, it generally brings back in return at least an equal value of other commodities. When both are the produce of domestic industry, it necessarily replaces, by every such operation, two distinct capitals, which had both been employed in supporting productive labour, and thereby enables them to continue that support.

The capital employed in purchasing foreign goods for home consumption, when this purchase is made with the produce of domestic industry, replaces, too, by every such operation, two distinct capitals; one of which only is employed in supporting domestic industry. Though the returns of the foreign trade should be as quick as those of the home trade, the capital employed in it will give but one-half the encouragement to the industry or productive labour of the country. But, in fact, the returns of the foreign trade are very seldom so quick as those of the home trade; the former coming in before the end of the year, and sometimes three or four times in the year; and the latter seldom coming in before the end of the year, and sometimes not till after two or three years. The capital, therefore, in the home trade will sometimes make twelve operations, before a capital employed in the foreign trade of consumption has made one. If the capitals are equal, therefore, the one will give twenty-four times more encouragement and support to the industry of the country than the other.

That part of the capital of any country, which is employed in the carrying trade, is altogether withdrawn from supporting the productive labour of that particular country, to support that of some foreign countries. And though it may replace, by every operation, two distinct capitals, yet neither of them belongs to that particular country. See the illustration of these principles in Smith's Wealth of Nations, vol. ii. p. 69, &c. See Capital.

The offences against trade, confidered in a legal view, are violating, or the offence of transporting wool or sheep out of this kingdom, to the detriment of its staple manufacture, (see Offer,) smuggling, fraudulent bankruptcy, vyury, cheating, (see Cheats,) forgery, regating, (see Regator,) engraving, monopoly, exercising a trade in any town, without having previously served as an apprentice for seven years, punishable by satire 5 Eliz. c. 4, with the forfeiture of 40l. per month; and transporting and reducing our artificers and manufacturers to settle abroad. See each head.

Trade, Balance of. See Balance.

Trade, Board of. See Board.

Trading Society. See Society.

Trade-winds, denote certain regular winds at sea, blowing either constantly the same way, or alternately this way and that; thus called from their great use in navigation, and the Indian commerce.

The trade-winds are of different kinds, some blowing three or six months of the year one way, and then the like space of time the opposite way; these are very common in the Indian seas, and are called monsoons; which see.

Others blow constantly the same way; such is that general wind between the tropics, which off at sea is found to blow all day long from east to west. For the phenomena of each, with their physical causes, see Winds.

Dr. Lister has a conjecture in the Philosophical Transactions, No 175, that the tropical or trade-winds arise, in great part, from the daily and continual upheavals of a flattus, called the fragassa, or laminella marina, which grows in vast quantities from 36° to 138° north latitude, and elsewhere upon the deepest seas. For the matter of wind, coming
coming from the breath of one only plant, must needs be constant and uniform; whereas the great variety of trees and plants at land furnishes a confused matter of winds. How, he adds, it is, that these winds are briskly about noon; the sun quickening the plant most then, curing it to breathe faster, and more vigorously. Lastly, the direction of this wind of ebb to well, he attributes to the general current of the sea; for a gentle air is observed to be constantly led along with the stream of the river; nor must it be omitted, that every plant is, in some measure, an heliotrope, and bends itself, and moves after the sun, and consequently emits its vapour thitherward; so that the direction of the trade-wind is, in some measure, also owing to the course of the sun.

Dr. Gordon has another hypothesis: the atmosphere, which surrounds the earth, and moves along with it in its diurnal motion, he supposes to keep pace with it; that part of it, at leaf, which is near the earth, if the remotest part should be judged to lose ground.

If, then, there were no changes in the atmosphere's gravity, he supposes it would always go along with the earth from well to ebb in an uniform motion, altogether inessential to us: but the portion of the atmosphere under the line being extremely rarefied, its spring expanded, and so its gravity and preffure much less than the neighbouring parts of the atmosphere, it is incapable of the uniform motion towards the ebb, and must, therefore, be preffed wellwards, and make the continual breeze from ebb to well, between the tropics.

TRADESCANT, John, in Biography, one of the fathers of natural history in England, having been the first who made any considerable collection of natural productions, (see Museum,) as well as one of the earliest cultivators of exotic plants in this country, is reported by Anthony Wood to have been a Dutchman. His name nevertheless appears to be English, and was originally of two syllables, Tradefcant, though it subsequently became Tra-def-caunt, as appears by a line in his family epitaph,

"—beneath this stone,

Lie John Tradefcant, grand sire, father, son."

Dr. Pulcenty thinks he was not settled in England during the life of Gerard, though often mentioned in the second edition of that author's Herbal, by its editor Johnfon, as well as in Parkinson's Works. He is recorded to have been for a considerable time in the service of the lord-treasurer Salisbury, and lord Wootton. He travelled into various parts of Europe, even as far Ruftia, and was on board a fleet sent against the Algerines in 1620. He brought home plants and other curiosities from these various excursions; but it does not appear what was their primary object. About the year 1629, he obtained the title of gardener to king Charles I., and about that time, or before, was settled at Lambeth, where his own garden was situated. Some remains of this were traced out by Sir William Watson 120 years afterwards. Tradescant's Ark, or Museum, became very famous as a collection of natural rarities. It was much visited by the great, and even by the royal family, all of whom took pleasure in enriching it, as in later times their descendants have done to other such collections. A catalogue of the Museum Tradescantianum, in 12mo., appeared in 1656, with portraits of the owner and his son, engraved by Holler; of which however most of the copies are plundered by mere print collectors, careles of the value of any thing beyond their own object. By this catalogue, the museum appears to have been furnished, not only with birds, quadrupeds, fish, shells, insects, minerals, fruits, &c. but also with warlike instruments, habits, utensils, coins, and medals. There is annexed a catalogue in English and Latin of the plants cultivated in the author's garden. His portrait represents him as greatly advanced in age; but the time of his death is not known. His son, of the same name, visited Virginia, and returned with several new plants; amongst others the original Tradescantia, hereafter mentioned. This son inherited his father's collections, and dying in 1662, bequeathed them to Mr. Elias Ashmole, so that they may be said to have laid the foundation of the Ashmolean Museum at Oxford, in which they, like the name of their original owner, are now sunk. The widow of the younger Tradescant, the mother probably of the grandson mentioned in the epigraph, is said to have erected the curious and rather splendid tomb, remarkable for its allusive decorations, which still exists in Lambeth church-yard. See Dr. Ducarel's account of this monument, in the sixty-third volume of the Philosophical Transactions. Pulteney's Sketches of Botany.


Obf. Mr. Brown, by whose and Gartner's observations we have endeavoured to improve the above generic characters, has most justly established a natural order of Commelinae, as distinct from Jussieu's Junici, from which they are, as he says, very different in habit as well as structure. Indeed we were never able to conceive how any professed natural system could allow of so strange an allembigence, of plants that have so little in common, as the above-named order of the great French teacher. Nor are we less surprized at the arbitrary assumption which will fill call the beautiful delicate and transient corolla of these plants, a calyx, though as different and distinct from the real external perianth, as in any flower whatever. But it is decreed that monocotyledonous plants can have but one integument to their flowers, and that this one must be a calyx; though here they have manifestly two, of which the internal one is, as usual, a self-evident corolla. Mr. Brown indeed feels the necessity of calling these internal parts petals with Linnaeus, though such phrasing oversteps the Jussieu hypothesis.

The genus before us confis of various species of herba-
cerous plants, some annual, others perennial, none of them natives of Europe. Their leaves are alternate, sheathing, simple, entire, with parallel ribs. Flowers clustered, short-lived, usually purplish, differing from those of Commelina, (see that article,) in being regular, with almost universally four-lobed anthodia. Mr. Kunth propounds to separate, into a distinct genus, certain species, the claws of whose petals are united, and whose two seeds, in each cell, are directed in a contrary manner, one upward, the other downward. The scar of these seeds, moreover, is said to be at the base, their embryo at the opposite extremity. In this predicament are T. axillaris, criftata, and some unpublished species. We proceed to augment Wildenow's list with some new species, most of them recently published by Mr. Kunth, among the discoveries of those illustrious travellers Baron Humboldt and Mr. Bonpland.

1. T. virginica. Common Virginian Spider-wort. Linn. Sp. Pl. 411. Willd. n. t. Ait. n. t. Pursh n. 2. Curt. Mag. t. 105. Sower. Drawing-book t. 6. Redout. Liliac. t. 95. (Phlaganthus ephemerus virginianum; Park. Parad. 152. t. 151. f. 4.) — Stem erect. Leaves lanceolate, smooth. Flowers numerous, in a fort of terminal fleshy umbel. Calyx hairy. — This, the original species of its genus, was brought from Virginia by the younger Tradescant, (see that article,) before the year 1629, as appears by Parkinson's Paradisus; and is now one of the most common hardy perennials of every country garden, blooming copiously throughout summer and autumn. Pursh says it occurs in sandy woods, from Pennsylvania to Carolina, flowering in May and June. The plant is readily increased, by parting its long fibrous roots, and thrives particularly well in flake and moisture. The flowers are eighteen inches high, round, leafy, febrately branched. Leaves sheathing, concave, taper-pointed, of a dark shining green. Flowers large, of a rich violet blue, each lasting but a day, or rather a few hours in the early part of a day, after which they roll up into a liquefying pulp mass; but there being a great number in each umbel, or tuft, there is a long succession. The five golden anthers are brilliantly contrasted with the dark purple fraggly filaments.


3. T. sphaerica. Roughish Spider-wort. Curt. Mag. t. 1597. Ait. Epit. 375. (T. criftata; Walt. Carol. 149.) — Stem erect. Leaves ovate-lanceolate, recurved, rough-edged. Umbels lateral and terminal, many-flowered. Calyx hairy. — Native of North America, from whence it is reported to have been brought by Mr. Lyon in 1812. The plant is a hardy perennial with us, flowering from June to September, but has little superiority to claim over T. virginica, except what arises from novelty. The foliage is broader, and more divaricated, than in that species, as well as very roughish, especially at the edge. Flower-flasks reddish or purple, becoming wrinkled as the flowers fade.

4. T. crista. Thick-leaved Spider-wort. Curt. Mag. t. 77. Ait. Epit. 216. — Stem erect. Leaves ovate, cornaceous; filgy at the margin and under side; with very short stalks. Umbels terminal, hairy. — Native of New Spain, flowering in September. A rove plant in England, introduced by the late marchioness of Bute. The root is tuberous, perennial. Mr. Ker Bellenden describes the stem as pro-cumbent, but by every other account it is erect. The broad thick ovate leaves, densely silky with white hairs at the base, are united to the stem, as well as both the petioles, all the foregoing. The flowers are of a pale violet, expanded but for three or four hours in a morning; their size equal to our first and third species. Calyx hairy.


8. T. Zanonia. Gentian-leaved Spider-wort. Swartz Ind. Occ. v. 1. 624. Willd. n. 4. (Commelina Zanonia; Linn. Sp. Pl. 61. Redout. Liliac. t. 392. Cephalia Zanonia; Kunth 164. Zanonia grandis; perfollata; Plum. Gen. 38. x. 38. Periclymenum rectum herbaceum, gentianale foli; foli pediculico caulême ambiente; Sloane Jan. v. 1. 243. t. 147. f. 1.) — Stem erect. Leaves elliptical, tapering at each end. Flowers capitate, on long, lateral, solitary flanks, pointed in the middle, with a pair of bracteas. Capsule clothed with the permanent pulp corolla. — Native of woods in the West Indies and South America, flowering in autumn. A not unfrequent flower plant in Europe, though less remarkable for the beauty of its flowers, which are small and white, than for the peculiarity of its dark-purple juicy fruit, formed of the thickened and enlarged corolla, which completely encloses the seeds. The root is perennial. Stem two or three feet high, mostly branched, smooth, juicy, leafy in the upper part. Leaves near a foot long, downy, beneath, fringed at the base, often red at the edges; their sheaths tumid, densely fringed. Flower-flasks opposite to each leaf, and nearly as long, with a sheath in the middle, and two ovate, spreading, leafy bractea at the top, Accompanying a head of eight or ten flowers.
9. **T. discolor.** Purple-leaved Spider-wort. L’Herit. Sert. Angl. t. 12. Willd. n. 5. Ait. n. 6. Swartz Ind. Occ. v. 1. 567. Sm. Ic. Pit. t. 10. Curt. Mag. t. 1192. Redout. Liliac. t. 168. — Smooth, with feebly any stem. Bractes compressed, embracing each other. Leaves lanceolate, coloured on the under side. — Native of South America, about the gulf of Mexico. Naturalized in Jamaica, and now very common in our stones, flowering early in the day throughout the summer. The leaves, forming a large tuft, are very conspicuous and handsome, in consequence of the rich violet hue of their under side, contrasted with the fine green of the upper. Flowers very copious, small, white, in flaked axillary umbels, much shorter than the leaves, and subtended by a pair of strongly compressed and keeled purple bractae.

10. **T. malabarica.** Grasf-leaved Spider-wort. Linn. Sp. Pl. 412. Willd. n. 6. Ait. n. 7. (Tali pullu; Rheede Hort. Mal. v. 9. 123. t. 63.) —Stems erect, angular; hairy at one side. Leaves linear, channelled, recurved, clasping the stem. Flower-flanks lateral and terminal, hairy, two or three together. — Native of the East Indies. Perennial, flowering in our stones in June and July. About a foot high, with many slender, slightly branched, stems, most leafy in their lower part, and small flowers. The calyx is hairy. Capsule exquisitely polished, as if varnished.

11. **T. diuricicata.** Spreading Spider-wort. "Vahl Eclog. v. 1. 34." Willd. n. 8. (Comnelina hexandra; Aubl. Guian. 35. t. 12.) — Stem branched, trailing. Leaves ovate, somewhat flaked, smooth, with bearded sheaths. Panicles terminal. Filaments naked. — Found by Aublet, in the Cayenne and Guiana, flowering almost all the year. **Root** perennial. **Stems** rising to the height of ten feet, supporting themselves upon the neighbouring bushes. **Leaves** two or three inches long. **Flowers** blue, in compound clusters, or panicles. Their **flames** are fited to be smooth, white, and fleshy.

12. **T. geniculata.** Knotted Spider-wort. Linn. Sp. Pl. 412. Willd. n. 9. Ait. n. 8. Jacq. Amer. 94. t. 64. (Ranunculus aut Himamomum repens, paranetis foliis villosis; Plum. Ic. 106. t. 116. f. 2.) — Stem decumbent, with a hairy lateral line. Leaves ovate, faggzy at the base and sheath. Panicles terminal, compound, capillary, nearly smooth. — Native of the West Indies, in shady moist places, flowering in our flowes about July and August. **Root** perennial. **Stems** weak; decumbent and creeping at the bottom; branched and leafy above. **Leaves** rather above an inch in length, pointed, hairy, especially at the margin and base; their sheaths tumid, membranous, densely faggzy at the border. **Flowers** small, white, in loofe di variasated panicles. **Calyx** smooth. **Capsule** pellucid, polished.

13. **T. monandra.** Small Monandrous Spider-wort. Swartz Ind. Occ. v. 1. 597. Willd. n. 10. —Stems diffuse, with a hairy lateral line. Leaves ovate-heart-shaped, smooth. Stalks axillary, many-flowered. Stamen solitary. — Discovered by the scrutinizing eyes of Dr. Swartz in bushy places on hills in the western part of Fiji-nia, flowering from June to March. A delicate perennial herb, creeping by means of long fibrous radicles. The **leaves** are not an inch long, very smooth, pointed, finely reticulated when dry, with pale fringed **flaments.** **Flowers** minute, white, in little axillary umbels. **Calyx** hairy. **Stamen** but one, slender, smooth.

14. **T. multiflora.** Many-flowered White Spider-wort. Swartz Ind. Occ. v. 1. 595. Willd. n. 11. — "Stem erect, branched. Leaves heart-shaped, fringed at the margin and sheaths. Flower-flanks axillary, crowded, many-flowered. **Stamen** three." — Found in shady woods on the mountains of Jamaica. Stem one or two feet high, round, furred, smooth. **Leaves** an inch long, acute, with short **flamines.** **Flowers** small, white, short-lived, in little flaked umbels, from the sheaths of two or three of the upper leaves.


16. **T. procumbens.** Procumbent White Spider-wort. Willd. n. 13. (T. multiflora; Jacq. Coll. v. 3. 226. 1c. Rar. t. 355.) — Stem procumbent, creeping. Leaves ovate, fringed at the base. Stalks axillary, cymose, many-flowered. Three of the flaments short and bearded. — Found in moist situations at the Caracas. It flowers in the flowe from August to December, and is perennial. **Jacquin.** This appears to be a much larger and stronger plant than the preceding, the **flames** being four feet long; their numerous flowering branches ascending. **Leaves** an inch and half or two inches in length, dark green, with ribbed sheaths. **Flowers** in many axillary, as well as terminal cymose tufts, small and white; their three longer flaments only bearded at the summit.

17. **T. axillaris.** Grasf-leaved Axillary Spider-wort. Linn. Syll. ed. 13. 260. Willd. n. 14. (Comelina axillaris; Linn. Sp. Pl. 61. Ephemerum phalangoides maderafatunum minimum, fucundum sema quasi ex utriculis floridum; Pluk. Phyt. t. 174. f. 3. "Nir-pullu; Rheede Hort. Mal. v. 10. t. 28. f. 18." — Stem branched, decumbent. Leaves linear, acute; with short, fringed, tumid sheaths, which are longer than the axillary flower-flanks. — Native of the East Indies. **Root** small, fibrous, annual. Stem much branched, decumbent, taking root at the joints, leafy, smooth, a foot long or more. **Leaves** graffy, smooth, from three to six inches in length, and one-third of an inch in breadth; their leaflets, smooth, but strongly fringed. **Flowers** rather small, blue, slightly flaked, fearfully projecting beyond the sheaths of the leaves, not always solitary in our specimens. **Calyx-leafes** lanceolate, but half as long as the tube formed by the united bafes of the petals. **Stamens,** according to Koenig, fix, with jointed hairs.

18. **T. crioflata.** Crefted Spider-wort. Willd. n. 16. Ait. n. 9. Jacq. Hort. Vind. v. 2. 64. t. 1. (Comelina crispata; Linn. Sp. Pl. 62. Burm. Ind. 18. t. 7. f. 4.) Ephemerum zeylanicum procumbens crififlata; Herb. Parad. 148. — Stem branched, decumbent. Leaves lanceolate, reflexed. Spikes terminal, recurved, with irricated crescent-shaped bractees. — Native of Ceylon; introduced at Kew in 1770 by M. Richard. It is annual, flowering in the flowe from July to September, and is remarkable for its long-flaked bracteated recurved **spikes,** of pretty little bright blue **flowers,** whose **flamines** are all bearded at the summit. The habit of the **herb** is like the latt, but with shorter, broader and blunter, deflexed leaves.

Spikes terminal, with three clasping bracteas.—Native of the East Indies. Burmann's figure indicates a very distinct species from the last, with longer and linear leaves. Each spike moreover seems completely enfolded in one large external bractea. Yet the Linnaean specimen, from the Upal garden, appears scarcely different from T. ebriflora, as Linnaeus himself suspected. He says the flowers are violet, not fleshy-blue. Those who pollins both plants, in a living state, can alone clear up the uncertainty which envelopes these species.

20. T. gracilis. Slender Purple-veined Spider-wort. Kunth n. 1. — Stem branched, procumbent. Leaves ovate, acute, fringed as well as their lach heathes. Umbels terminal, aggregate, on downy filakis. Calyx coloured, rather deep. — Native of the cooler regions of Quito, near Tarqui and Chillo; perennial, flowering in February. Stems smooth, a foot long. Leaves thickish, eight or nine lines in length. Umbels three or four together, with about four flowers in each, whose corolla is white, veined with purple. Staminis hairy at the base. Cells of the anthers widely separated.

21. T. dilbils. Weak White Spider-wort. Kunth n. 2. — Stem erect, weak, nearly simple. Leaves oblong-oblong, acute, fringed as well as their lach heathes. Umbels solitary or in pairs, on smooth filakts. Calyx hairy at the summit. — Found with the last, to which it is confessedly nearly akin; but the leaves differ somewhat in shape, and the umbels consist of ten or twelve flowers, whose calyx is green, and their petals pure white.

22. T. patulella. Dwarf Purple Spider-wort. Kunth n. 3. — Stem procumbent, branched. Leaves oblong-oblong, pointed, smooth; rough with minute ferratures at the margin. Sheaths lax. Umbels in pairs, on smooth thills. Calyx gibbous at the base, smooth. — Native of a temperate climate, on the Mexican mountains, between Guanaxauto and Santa Rosa de la Sierra, flowering in September.—Root perennial. Stem six inches or more in length, round, smooth, sometimes simple. Leaves an inch and a half long, membranous, with about thirteen ribs. Umbels terminal, of about nine purple flowers. Calyx-leaves linear-lanceolate, bluntish, gibbous at the base. Cap-sule oblong, smooth, of only two cells, with solitary seeds, rough with dots.

23. T. biriflota. Hairly Procumbent Spider-wort. Kunth n. 4. — Stem procumbent, branched. Leaves oblong-lanceolate, pointed, rough-edged, waved, beneath hairy, as well as their lach heathes. Stalks three or four-flowered, terminal, in pairs, hairy like the slightly coloured calyx. — Native of the cooler mountains of New Granada, near San Miguel on the banks of the river Putés, Teindala, and the village of La Cruz, flowering in November. The root is perennial. Stem two or three feet long, round, hair dotted, smooth. Leaves rounded at the base, flat, with about nine ribs, an inch and a half or more in length, four lines broad; their upper surface nearly smooth. Sheaths petiolate, frilated, half an inch long. Calyx-leaves lanceolate, acute, purplish-green. Petals twice as long, purple. Filaments hairy at the base.

24. T. fornitia. Tall Cape Spider-wort. Willd. n. 15. (T. speciosa; Linn. Suppl. 192. Lamarck n. 9. T. nodiflora; Lamarck n. 6, according to Willdenow. Commelina speciosa; Thumb. Prodr. 58.) — Stem erect, zigzag. Leaves opposite, combined at the base. — Found by Thunberg at the Cape of Good Hope. The stem is two feet, or more, in height, round, smooth, except a little woolly line at each fide, running down from the joints. Stem-leaves opposite, awl-shaped, keeled, from two to four inches long, VpL XXXVI.

rather woolly at the margin, inferted in pairs into a tumid, entire, woolly or hairy sheath, about half an inch in length. Flowers in dense, axillary, aggregate heads, with lanceolate bracteas; the lower heads filaked. Leaves of the calyx lanceolate, keeled, combined at the base. Filaments very hairy. Style bearded at the upper part. Willdenow seeks, in transferring from the Supplementum, to have written the name fornis for speciosa. The latter being now applied to a different species, see n. 5, we retain the former here. Lamarck may possibly have inferred the same plant twice, once after Linnaeus, without seeing a specimen.

The most singular circumstance in the botanical history of Tradescantia relates to what Linnaeus has named T. nervosa, Mant. 223. Willd. n. 7. This proves, by the original specimen from Mutis, accompanied with a drawing, to be a very curious plant of the Orchis family. Mutis justly remonstrated with Linnaeus against making it a Tradescantia, and called it an Epidendrum. Mr. Kunth, who has seen our specimen, informs us it belongs to a new genus, and is named by him Thelypogon angustifolius. The style, or column, is exceedingly hairy, or rather bristly. The lip is very little broader than the two petals, all of them being marked with numerous parallel ribs. The whole flower is above an inch wide, and seems to be very handsome.

Tradescantia, in Gardening, furnishes a plant of the hardy herbaceous perennial kind, the species of which that is chiefly cultivated, is the common Virginia spider-wort, or flower of a day; but there are other species that may be cultivated.

And there are varieties with pale blue flowers, with deep blue flowers, with white flowers, with red flowers, and with purple flowers.

Method of Culture.—They are readily increased by parting the roots, and planting them out in the autumn, or early in the spring, in a bed or border of common earth. And also by seeds sown at the same feasons in similar situations, the plants being pricked out into other beds in the summer, and removed to the autumnal places to which they are to grow.

These plants are durable in the roots, but the flalks decay annually; they mostly fend forth a new flower every day, hence the common name, during some weeks in the fumerous feson, and are proper for planting out in various places in pleasure-grounds.

They afford ornament in the common borders among other flower-plants.

TradeWater, in Geography, a river of Kentucky, which runs into the Ohio, N. lat. 37° 17'. W. long. 88° 30'.

Tradita Nucu. See Abalenaion.

Tradition, Traditio, the act of delivering a thing into the hands of another. The sacle of a movable is completed by a simple tradition.

Tradition, in Matters of Religion, is applied to those laws, doctrines, relations, &c. which have been handed down to us from our forefathers, without being written.

Taking tradition in this sense, for every thing relating to faith, or the rites and ceremonies of religion thus derived down to us from the primitive church, there are two kinds, viz. apofolitical and ecclesiastical tradition.

Tradition, Apofolitical, which is what we properly call tradition, is defined by the Romanists to be the unwritten word of God, defended from the apostles to us, through a continual succession of the faithful.

By this tradition, say they, it is, that the Holy Scriptures have been kept entire, both as to the letter, & c. the text, and as to the spirit or sense thereof. This tradition the Council
council of Trent declares to have the same authority with the Holy Scripture itself, and pronounces every one who rejects it an heretic.

It is a question of some difficulty, when the church of Rome began to derogate from the authority of the Scriptures, and to raise these traditions to an equality with them. It is generally supposed, that pope Nicholas ordained, that the decretal epistles of the popes should be of the same authority as the Scriptures, about the year 855. Du Plessis (Mylt. Inq. Progr. 31.), indeed says, that pope Agatho had, 150 years before, pronounced openly, "that all decrees made by the see apostolic, ought to be received as if they had proceeded from St. Peter's own mouth." But as this doctrine had gained no canonical authority in the pontificate of Nicholas, it ought not at so early a period be placed to the account of the church. Nor did that diligent inquirer find any formal decree to such effect till the year 1415, when the council of Constance, in the condemnation of the 38th article of Wickliffe's heresy, ordained, that such of the decretal epistles as should be found upon examination to be rightly subscribed to the popes whose names they bore, should be of equal authority with the epistles of the apostles. (L'Enfant's Hist. Council of Constance, vol. i. p. 229.) From this period, the sufficiency of the Scriptures alone to salvation became a formal heresy, as appears by the 12th of the interrogatories exhibited to Lambert with Fox's Martyrology in the year 1538. Hitherto, however, the Scriptures stood upon even ground with papal constitutions; and the inconformities between them were kept sufficiently out of sight, by depriving the people of the ordinary means of studying the sacred oracles, and entertaining them only with the ignorant and mythical comments of the monks upon them. When these would no longer pass upon mankind, it then became necessary to degrade the Scriptures to an inferior clafs.

Traditions, Ecclesiastical, are certain statutes and regulations regarding the rites, customs, and circumstances of religion, introduced since the time of the apostles, by councils, popes, &c. and continued to our time through a constant observance of the church. The Romanists make another division of tradition, viz. into written and unwritten.

Tradition, Written, is that of which we find some traces in the ancient fathers and doctors.

Tradition, Unwritten, is that of which there appear no signs or relics in any of the fathers extant.

The church of Rome pretends to be the depository of each kind; tradition she holds to be absolutely necessary in the church, grounding this necessity on the promise of infallibility which Jesus Christ is pretended to have made her.

Yet others of that communion deny tradition, how excellent soever it may be for the reclaiming of heretics, to be absolutely necessary; maintaining, that the church would not be less infallible, nor less the rule of doctrine, &c. if the fathers had never written at all.

Traditionary, Traditionarius, a name given among the Jews to such of them as acknowledged tradition, follow it, and explain the Scriptures by it; in opposition to the Caraites, who refuse any thing but the pure Scriptures themselves.

The traditionaries are what we more usually call rabbis, and rabbinists, or talmudists. Hillel alone among the traditionaries, and Shamai among the textuaries.

Traditores, a name given in the first ages of the church to such Christians as, in times of persecution, to avoid death and martyrdom, delivered up the sacred writings to the persecutors.

The enemies of religion, even under the old law, made their utmost efforts to deprive the world of the Holy Scriptures; in that cruel persecution which Antiochus raged against the Jews, the books of the law were very solicitously sought after, torn, and burnt, and such as kept them were put to death; as we read in the first book of Maccab. ch. i. v. 56, 57.

Dioecletian renewed the same impiety, by an edict published in the nineteenth year of his empire, commanding all the sacred books to be brought to the magistrates, and burnt.

Many weak Christians, and even some bishops, overcome with the fear of punishment, carried in their books to the persecutors: which the church detesting, made very severe laws against them, and gave them the infamous names of traditores, from traduo, I deliver, betray.

As the great pretence of the felchins of the Donatists was, that the Catholics tolerated the traditores, it was decreed in the council of Arles, held in 314., that such as should be found guilty of having delivered up any of the holy books or volutes, should be deposed from the order of the clergy, &c.

Traducian, Traduciani, a name which the Pelagians anciently gave the Catholics, because of their teaching that original sin was transmitted from father to children, or that it was communicated to the children by the father in the way of generation.

The word is formed of the Latin tradux, which was made use of to express that communication; and which comes from traduo, I transmit, or propagate from one to another.

At present, some give the appellation traduciani, to such as hold, that the souls are transmitted to the children by the father.

Traduction, formed of trans, beyond, and dux, I lead, draw; the act of translating, or turning out of one language into another. See Translation.

Traeth Buan, in Geography, a bay of the Irish sea, on the west coast of Wales, in the county of Merioneth; 2 miles N. of Harlech.

Traeth Coed. See RedWharf Bay.

Traeth Mawr, a bay of the Irish sea, on the west coast of Wales, between the counties of Merioneth and Caernarvon; 4 miles N. of Harlech.

Traetta, Thomas, in Biography, a Neapolitan composer of the first clafs during the last century. We have a very spirited and accurate account of the rapid progress of this master to the temple of Fame, in M. Laborde's "Effai sur la Musique," drawn up, we believe, by the animated and discriminative pen of count Benincasa; who says that, "Traetta, one of the last disciples of Durante, quitted the conservatory at the age of twenty-one, and two years after he was chosen to compose an opera for the great theatre royal of San Carlo, at Naples, entitled 'Farnace.' His success in this first attempt was so great, that he was employed in the same city to compose six other operas, serious and comic, successively.

"The reputation of this young composer soon reached Rome, whither he was invited, and composed for the Alberti theatre 'Ezio;' which, though it had been previously set by so many great masters, that of Traetta was, and is still, the most esteemed. All the great theatres of Italy now wished to engage him, and he composed for them all more than once, till he was fixed in the service of the court of Parma, in the splendid reign of Don Philip, where he had the honour of instructing in music the late archdukes, confort of the emperor Joseph II., and the princes of A}[315].
ris, her filer. The operas which he then composed at Parma were entirely in the French taste, which was that of the court. The choruses and the ballets are not yet forgotten. It is this totality that unites the charms of all the fine arts together. The Italians have long known and applauded such splendid spectacles, and often exhibited them successfully in the last and preceding century; but with them the occasions cannot be frequent. A great capital, like Paris, is necessary, which constantly furnishes an audience and spectators able to pay for their amusements all the year round; or magnificent courts, such as those of the princes of the house of Este, Medici, Farnefe, and Parma, in former times.

"The first of the six operas which Traetta composed in this style, was 'Ipolito and Aricia,' written by the famous poet, the abate Trugoni, in 1759. At this period Traetta was twice called to Vienna to compose 'Armida' and 'Ifigenia,' two grand operas with choruses and ballets, which were crowned with the greatest success. (This was five years previous to the performance of Gluck's 'Orfeo' at Vienna.)"

"These two operas were afterwards represented at Milan, Florence, Mantua, and Naples. After the decease of the infant Don Philip, Traetta was called to Venice, where he was appointed maestro to the conservatorio of Opiffioletto; but he could not there refit the proposals made to him from all parts of Europe. After two years' residence at Venice, he suffered himself to be attracted to Petersburg, where he was engaged for five years; at the end of which period he was detained two years longer, during which periods he composed seven operas, and many cantatas."

"England wished to have him in its turn; but he arrived there too late; his health was so impaired, that he seemed never to have enjoyed a day's cafe and comfort while he was here. And Sacchini, who was still in London, had taken such possession of our hearts, and so firmly established himself in the favour of the public, that he was not to be supplanted by a composer in the same style, neither fo young, so graceful, nor so fanciful as himself.

"Sacchini's person and address had contributed towards enduring him to the English; but, on the contrary, Traetta's countenance and general appearance were so chilling as to be almost frightful. A skin extremely adult, a settled gravity, deficient and gloom covered his vigafe so constantly, as to make a beholder shrink at the sight of him, and imagine it impossible that any thing pleasing, even to rapture, should flow from its matter. But all this only proves that Horace, who says, 'Fronti nulla fides,' was a much better physician than Lavater."

"Though many excellent tones and scenes of his composition had been introduced in patficio operas on our stage, yet we can remember but two entire dramas of this matter that were executed here, 'Germone,' a serious opera; and 'La Sera rivale,' a burletta. But the dramas which he composed in and for different parts of Europe, must amount to more than fifty."

"On quitting England, he returned to Italy in an alarming state of health; however, we find that, in 1778, he produced two operas there: 'La Disfatta di Dario,' and 'Il Cavalieri Menate;' but 1779 was the last year of this admirable musician's existence."

"TRAFAGNOL, in Geography, a river of Germany, in the county of Tyrol, which runs into the Lavis, 4 miles N. of Caffellier."

"TRAFALGAR, Cape, a cape of Spain, on the coast of Andalusia; about 60 miles E. of Cadiz. N. lat. 36° 10'. W. long. 6° 8'. This cape has been rendered famous by the complete victory obtained October 21, 1805, by the British fleet, commanded by Lord Nelson, over the combined fleets of France and Spain off this cape. (See the biographical article of NELSON.) Among the Arabs there is a tradition, that the province of El Garb, in Morocco (feet Garb), was originally united to Trafalgar and Gibraltar, shutting up the Mediterranean sea, the waters from which passed into the Western ocean by a subterraneous passage: and at this day they call Trafalgar Traf-el-garb, i.e. the piece or part of El Garb; and Gibraltar, Jibbel-trajf, i.e. the mountain of the piece, or part of El Garb."

"TRAFARIA, a fort of Portugal, in the province of Estremadura, on the south side of the Tagus; 6 miles S.W. of Lisbon."

"TRAFFICK. See Trade and Commerce."

"The word is formed from the French traffie, and that from the Italian, traffico, which is again borrowed from the Arabic."

"The principal traffic in Muscovy and the North is in furs and skins: the great traffic of the Dutch in the East is in spices: the traffic of money is mostly carried on at the Exchange."

"TRAFINE. See TREPAN."

"TRAGACANTHA, in Botany, Τραγακάνθα, of Dioscorides, book 3, chap. 23, is so called from Τραγακάνθα, a goat, and ακάνθα, a thorn, probably because of its growing in mountainous situations, frequented by goats; or perhaps from being the food of (those animals, to whom its thorny footstalks may fearfully prove any impediment. There are several species, almost all confounded by Linnaeus under his Afromalus Tragacantha, but distinguished by Tournefort, as well as more recently by Willdenow, Lamarr, and others."

"Three of them are defined to appear in the Flora Graeca. They all produce more or less of the mucilaginous substance called Gum-Tragacanth, or Gum-Dragon, and are remarkable for their dense, bushy, thorny habit, and copious, not inelegant, flowers. Tournefort, in his Corolla, p. 29, 30, has added nineteen Oriental species to the four mentioned in his Institutiones, p. 417; but these, though for the most part truly dininæ, are some of them probably mere varieties, and are so confounded by Lamarr; see his Dictionnaire de Botanique, v. 1. 320; where these plants compose a section of the genus Afromalus, characterized by the permanent, finally spinous, common footstalks of the leaves."

"TRAGACANTHA, in the Materia Medica. The naked hillocks of mount Ida, in Candia, M. Tournefort tells us, produce much of the plant tragacantha, or goat's thorn, which gives the gum spontaneously towards the end of June, and in the following month; when the nutritious juice of the plant, thickened by the heat, bursts most of the vefels in which it is contained."

"This juice coagulates in threads, which make their way into the pores of the bark, where being pushed forward by new juice, they get through the bark, and are at length hardened in the air, either into little lumps, or into twisted pieces in form of little worms, more or less long, according to the quantity of the matter of which they are formed.

"It should seem, too, that the contraction of the fibres contributes to the exprefion of the gum; those fine fibres, like the fibres of hemp, laid bare and trampled under foot by men and horses, contract themselves, and facilitate the expression of the extravagated juice. The plant grows also in several places of the Levant, particularly about Aleppo."

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M. de la Billardiere's account of the manner in which this gum is produced, differs in some respects from that of Tournefort. Having visited mount Lebanon in August, 1736, the seafon when this gum is collected, he found the species which afforded it to be different from that figured and described by Tournefort, and consequently not the tragacantha of Linnaus. The stem of the Cretan tragacanth is blackish, that of Lebanon is yellow: the leaves of the first are downy, of the second smooth: the flowers of one are red, those of the other are of a pale yellow. Hence he infers that there are several species of tragacanth which produce gum-tragacanth. He also contradicts the statement of Tournefort, who attributes the flowing of the gum to the contraction of the fibres of the bark, occasioned by the intensity of the solar heat; observing, that it is only during the night, or when the sun is obscured by clouds, that the gum issues from the plant, and that the fame has been remarked at Crete.

The gum is of different colours and qualities, some being white, some greyish, some reddish, and some almost black. The white is the best: it must be chosen clear, smooth, and twirled, or vermicular. It is dry, and yet somewhat soft to the touch.

Gum-tragacanth differs from all the other known gums in giving a thick consistency to a much larger quantity of water; and in being much more difficultly soluble, or rather dissolving only imperfectly. Rotty affords, that in five or six hours it will dissolve in cold water. Put into water, it slowly imbibes a great quantity of the liquid, swells into a large volume, and forms a soft but not fluid mucilage; with the addition of more water, a fluid solution may be obtained by agitation, but the liquor appears turbid and wheyish, and on standing the mucilage subsides.

It is smooth and softening, and is therefore good to ob-}

The mucilage of tragacanth of the Edinb. Ph. is prepared by macerating one ounce of gum-tragacanth in powder, in eight ounces of boiling water for 24 hours, and triturating the gum so that it may be disintegrated and创伤 the mucilage through linen. The mucilage of gum-tragacanth of the Dubl. Ph. is obtained by macerating two drachms of gum-tragacanth in powder, in eight fluid-ounces of water, in a covered vessel, until the gum is disintegrated, and创伤ing the mucilage through linen. The compound powder of tragacanth of the Lond. Ph. is formed by taking of tragacanth powdered, acacia gum powdered, and starch, of each an ounce and a half; and of refined sugar three ounces. Rub the starch and sugar together to a powder; then add the tragacanth and the acacia gum, and mix the whole together. This powder is used with effect as a demulcent in hectic fever, and to allay the tickling cough of catarrh; in gonorrhoea and strangury it is given combined with nitre, and in dysentery with ipecacuanha powder. The dose is from 5s to 3ij, mixed in water or any bland fluid.

TRAGACANTHUM Venereum Indicum, in Natural History, a name given by some writers to the bird's-nests so famous in soups in China, and in some parts of Europe, for their cordial, retorative, and provocative virtues. They are the nests of a kind of Indian sea-fowl, and are made up of a substance resembling gum-tragacanth, and, like it, melting in a jelly in any warm liquor.

TRAGÆA, in Ancient Geography, a town of the island of Naxos, in which particular worship was paid to Apollo Trojan.

TRAGAN, in Geography, a town of Africa, in Fez-}

TRAGARTH, a river of Wales, in the county of Brecknock, which runs into the North Sea.

TRAGÆA Saline, in Ancient Geography, salt-pits of Africa Minor, in the Troade, near Hamaxitum. Strabo.

TRAGASIAN SALT, a term used among the ancients for a sort of sea-salt, very little different from the common kind, being made by the evaporation of the water of some salt-ponds near the sea-flores.

TRAGÆA, in Pharmacy, an aromatic powder grossly beaten and mixed with sugar; taken by way of carminative.

TRAGEA, or Tragia, in Ancient Geography, an island situated in the vicinity of the Cyclades.

TRAGÆA, islands situated on the coast of Ionia, but they were joined to the continent by the depopulations of the Meander. They served as a retreat for pirates, according to Strabo, and lay N. of the promontory Podium, S.E. of that of Troglilium, and W. of the town of Miletus.

TRAGÆY, a dramatic poem, representing some signal action performed by illustrious perons, and which has generally a fatal issue or end. Accordingly, it has been always reckoned a more dignified entertainment than comedy. The former directs our attention to the high passions, the virtues, crimes, and sufferings of mankind; the latter to their humours, follies, and pleasures. Terror and pity are the great instruments of tragedy; and ridicule is the sole instrument of comedy.

Tragedy exhibits the characters and actions of men, says Dr. Blair, in some of the most trying and critical situations of life, and serves as a direct imitation of human manners and actions. It differs from the epic poem, in which the poet narrates and describes characters, by excluding the poet, and letting before us the personages themselves, acting and speaking what is suitable to their characters. As no kind of writing affords so great a trial of the author's profound knowledge of the human heart, none, when duly executed, has so much power to raise the strongest emotions. It is, or ought to be, a mirror, in which we behold ourselves, and the evils to which we are exposed; a faithful copy of the human passions, with all their direful effects, when they are suffered to become extravagant.

Aristotle scientifically defines tragedy, the imitation of one grave and entire action, of a just length, and which, without the aidfulness of narration, by raising of terror and compassion, refines and purges our passions.

This definition has given the critics some perplexity; and Corneille declares he cannot reconcile Aristotle with himself; the instances Aristotle cites, he thinks, defeat his own definition. He even denies the purging of our passions to be the end of tragedy.

Our English authors are more favourable to the definition; by the purging of our passions, they understand not the extinguishing of them, but the reducing them to just bounds; by frowning the miseries that attend a subjection to them, they lay it to us to watch them more narrowly; and by feening the great misfortunes of others, it lessens the feme of our own.

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The ingenious writer already cited, disapproving the statement of Aristotle with regard to the design of tragedy as somewhat obscure, thinks its intention may be more shortly and clearly defined, "to improve our virtuous sensibility." If an author interests us in behalf of virtue, forms us to compasion for the distressed, inspires us with proper sentiments, on beholding the vicissitudes of life, and by means of the concern which he raises for the misfortunes of others, leads us to guard against errors in our own conduct, he accomplishes all the purposes of tragedy. Tragedy is, therefore, a moral species of composition; and the impressions left by it on the mind are, upon the whole, favourable to virtue and good dispositions. In order to produce this beneficial effect, it is necessary that the author should choose some interesting and moving story, and then conduct it in a natural and probable manner. The end of tragedy is not like that of epic poetry, to elevate the imagination by the marvellous, but to affect the heart by a stricter imitation of the life and actions of men. This principle, duly regarded, excludes from tragedy all machinery, or fabulous intervention of the gods; and, therefore, the mixture of machinery with the tragic action, is a blemish in the ancient theatre. Hence some critics have required, that in order to produce and maintain the impression of probability upon which the succefls of tragedy depends, the subject should not be a pure fiction, but founded on real history, or known facts. This, however, seems to be an extreme; as a fictitious tale may affect the heart as much as a true history, provided that the events related be such as might easily have happened in the ordinary course of nature. Some of the most pathetic tragedies are altogether fictitious as to their subject; such as Voltaire's Zaire and Alzire, the Orphan, Douglas, the Fair Penitent, &c.

For the regulation of the conduct of a tragedy, critics have established the famous rule of the three unities, to which we shall presently advert.

Tragedy, in its original, M. Hedelin observes, was only an hymn sung in honour of Bacchus by several persons, who, together, made a chorus of music with dances and instruments. A goat was the sacrifice offered to that god; and from ταύρος, a goat, and δίς, a fold, was formed the appellation tragedy.

As this was long, and might fatigue the fingers, as well as tire the audience, they bestowed themselves on the singing of the chorus into several parts, and to have certain recitations in the intervals.

Accordingly, Thespis (see his article) first introduced a person to speak upon the stage with this view.

Phrynichus, the disciple of Thespis, selected that kind of verse which is most suitable to the drama, and introduced some other changes, but left tragedy in its infancy. He, it is said, introduced women's parts on the stage.

Æschylus, the father of tragedy, as he has been called, finding one person insufficient, introduced a second to entertain the audience more agreeably by a kind of dialogue: he also clothed his persons more decently, and first put on them the bulkin. For his other improvements in this species of drama, see his article ÆSCHYLUS.

The persons who made their recitations on the scene, were called adiores; so that tragedy at first was without many actors. And what they thus rehearsed, being things added to the singing of the chorus, of which they were no necessary part, were called epides.

Sophocles found that two persons were not enough for the variety of incidents; and accordingly he introduced a third: and here the Greeks seem to have flopped; at least, it is very rare that they introduce four speakers in the same scene.

The progress of the art under the culture of Æschylus, and his immediate successors, was extremely rapid. He had for contemporaries and competitors, Chersilus, Pratinas, and Phrynichus already mentioned, whose glory he eclipsed; and Sophocles, who rivalled his own. Sophocles confounded in Æschylus three defects: the excessive elevation of his ideas, the gigantic style of his expressions, and the difficult conduct of his plots; and these faults he flattered himself for having avoided. By reducing heroism to its just standard, Sophocles lowered the style of tragedy, and banished those expressions which a wild imagination had dictated to Æschylus, and which diffused terror through the souls of his spectators. His style, like that of Homer, is full of strength, magnificence, sublimity, and mildness. Even in depicting the most violent passions, he happily suits his style to the dignity of his personages. See the article SOPHOCLES.

Euripides, at an early age, emulated the fame of Sophocles, and aspired to the sovereignty of the stage. See the biographical article EURIPIDES.

Notwithstanding the prejudices and hatred of Arilophanes against Euripides, his decision in assigning the first place to Æschylus, the second to Sophocles, and the third to Euripides, was conformable to the opinion of the greater part of the Athenians. Æschylus, it is said, painted men greater than they can be, Sophocles as they ought to be, and Euripides as they are. The two former had neglected passions and situations, which the latter thought capable of producing great effects. He sometimes represented princes inflamed with love, and respiring only adultery and crime; and sometimes kings debauched by calamity to such poverty, as to be covered with rags, and solicit a wretched alms. These scenes, in which no resemblance was discernible of the manner of Æschylus or Sophocles, at first disconcerted the spectators. It was said, that under no pretext ought the character and rank of the heroes of the stage to be fo degraded; that it was highly reprehensible to pourtray with so much art images so shameful, and dangerous to supply vice with the authority of great examples. But at this time the Athenians in general were left offended at the attacks which the pieces of Euripides made on received ideas, than hurried away by the sentiments with which he had atonised the passions of the soul, is especially admirable when he paints the furies of love, or excites the emotions of pity; then, surpassing himself, he sometimes attains the sublime, for which he seems not to have been intended by nature. While he was accused of enervating tragedy, he had proposed to render it the school of wisdom. Euripides, whose eloquence sometimes degenerated into a redundant profusion of words, and whose rhetorical phrases, learned digressions, and idle disputes reduced him much below Sophocles, who has said nothing which has not its utility, is nevertheless said to have fixed the language of tragedy. He retained scarcely any expressions that are especially appropriated to poetry; but he judiciously selected and employed those of ordinary language, that, under their happy combination, the feelings of the thought seemed to disappear, and the most common word to become emblazoned. Such was the magic of that enchanting style, which, preferring a just medium between meanness and inflation, is almost always eloquent, clear, harmonious, flowing, and flexible, that it seems to adapt itself without effort to every feeling of the soul. Whilst Sophocles admitted into his choruses the Phrygian
TRAGEDY.

Phrygian harmony, the object of which was to moderate and temper the passions, and which was adapted to the worship of the gods; Euripides, favouring the innovations made by Timotheus in the ancient music, employed almost all the modes, and especially theo, the sweetest and softest of which accorded with the genius of his poetry. Accordingly the audience were accustomed to hear in the theatre effeminate tones, and sometimes divisions on a single syllable. Hence the author was represented as a feeble artist, who, incapable of raising himself to the sublimity of tragedy, had deprived tragedy to the level of his own inferior abilities.

Euripides rarely succeeded in the disposition of his subjects; sometimes he offends against probability, sometimes the incidents are forced, and sometimes the action wants unity; almost always the complications and developments of his plots are in some respects imperfect; and his choruses have frequently only an indirect relation to the action.

He invented the method of explaining his subject in a prologue, or long preface, almost entirely detached from the piece, in which usually one of the persons of the drama comes forward, and frigidly details all the events antecedent or relative to the action, gives his own genealogy, or that of one of the principal characters, informs us of the occasion of his departure from heaven, if he is a deity, or who has called him forth from the tomb, if a mortal; and announces himself to the spectators by declaring his name. It is hardly necessary in this connection to mention Dionysus the elder, king of Syracuse; who was aided in the composition of his tragedies by some men of genius, but was indebted to their assistance for the victory he obtained in this species of literature. Aeschylus, Sophocles, and Euripides were, and ever will be, placed at the head of those who in ancient times rendered the stage illustrious. Nevertheless, though the number of pieces which prevailed in the theatrical competitions was very great, the first obtained the crown only thirteen times, the second but eighteen, and the last only five times; because the victory was decided by the multitude, which had patrons whose passions it espoused, and favourites whose interests it supported. It is remarkable, in how short a space of time tragedy grew up among the Greeks, from the modest beginning to the most perfect state. For Sophocles, the greatest and most correct of all the tragic poets, flourished only twenty-two years after Aeschylus, and was little more than seventy years posterior to Thebais. The chorus was the basis of the ancient tragedy, and the dramatic dialogue was superadded to it. In procons of time, the chorus, from being the principal, became only the accessory to tragedy; till at last, in modern tragedy, it has disappeared altogether; which forms the chief distinction between the ancient and the modern stage.

Each tragedy required three actors for the three leading parts; and the same actors sometimes performed both in tragedy and comedy; but persons very rarely excelled in both. Actors who had acquired great celebrity received considerable pay; not less than a talent (or 225/. sterling) in two days. The kind of verse generally employed in tragedy was the iambic, a species of measure that frequently occurred in conversation. The actors had habits and symbols suited to their several parts; and tragedy almost from its earliest invention employed the mask, which was completed under the hands of Aeschylus. In tragedy the stature of the actors was frequently increased to four cubits (fix English feet and nearly half an inch); which was effected by bukias, that raised them four or five inches; gauntlets also lengthened their arms; and their breasts, sides, and every part of the body, were rendered apparently thicker in proportion. The subject, in the composition of the Greek tragedy, was diversified by variety in the fable, which was simple or complex; by variety in the incidents, which excites terror and pity; by variety in the discoveries, which are one of the most copious sources of the pathetic, especially when they produce a sudden revolution in the condition of the persons of the drama; by variety in the characters, and by variety in the catastrophe, in which latter respect some dramatic pieces conclude happily, and others drastically; and there are some, in which, by a double revolution, both the virtuous and the wicked experience a change of fortune. The first of these terminations, however, seems only suitable to comedy. The manners in this species of drama, as well as in others of a similar kind, teach the exact conformity of the actions, sentiments, thoughts, and language of the performer with his character; and it is, therefore, necessary, that from the very first scenes, we should be able to discover, from what he does and what he says, the nature of his present inclinations, and his ultimate designs. Accordingly, the manners should be proper and uniform; suitable to the age and dignity of the person; neither contrary to the idea of the hero delivered down to us by ancient tradition, nor inconsistent in any part of the piece. The writers of tragedy should, like our actors, inspire spectators and judges with pity, terror, or indignation; and like them, demonstrate a truth, or refute an objection, aggravate or diminish an object. In many of the ancient tragedies we perceive beauty of thought and elevation of sentiment in all their parts; triumph in the language of truth, and the eloquence of the unfortunate. With this view behold Merope, Hecuba, Eleftra, Antigone, Philoctetes, succeeded sometimes by the horrors of death, and sometimes plunged in shame or despair, or bitten to the very accents of grief, those piercing exclamations, those passionate expressions, which, from one end of the theatre to the other, make the voice of nature resound in every heart, and compel all eyes to dilate in tears. The style of tragedy, though not pompous, should nevertheless be suitable to the dignity of the ideas. All mean expressions should be avoided. See Travels of Anacharsis the younger, in Greece, vol. vi.

Tragedy and comedy were at first confounded with each other; but they were afterwards separated; and the poets in general applied themselves to the cultivating of tragedy, neglecting comedy.

When tragedy was got into a better form, they changed the measure of its verse, and endeavoured to bring the action within the compass of a day, or of a revolution of the sun.

We now proceed to give some account of the three unities of action, place, and time, which have been considered as essential to the proper conduct of the dramatic fable. The first of these is the most important, and it consists in a relation which all the incidents introduced bear to some design or effect, so as to combine naturally into one whole. This unity of subject is more essential to tragedy than to epic poetry; for a multiplicity of plots or actions, crowded into fo short a space as tragedy allows, must necessarily detract the attention, and prevent passion from rising to any height.

(See Action and Epic Poem.) All under-plots should be rendered subservient to the main action. Addison's "Cato" is defective in this respect. The subject of the tragedy is the death of Cato, which the author supports with dignity; but all the sub-plots in the play are mere episodes, unconnected with the principal action.
TRAGEDY.

Unity of the action should not be confounded with the simplicity of the plot. The plot is simple, when a small number of incidents are introduced into it; but it may be complex, in the language of critics, or include a considerable number of pertons and events, and yet not be deficient in unity, if all the incidents tend towards the principal object of the play, and be properly connected with it. Congreve's "Mourning Bride" is adduced as an instance which stands in perfect opposition to the simplicity of the ancient plots. The incidents succeed one another too rapidly, and the play is too full of buffoon. Unity of action must not only be regarded in the construction of the fable, or plot, but it must also regulate the severa1 acts and scenes into which the play is divided. The division of the play into five acts is altogether arbitrary, and rests merely on common practice, and the authority of Horace, De Arta. Poet. (See Acts, in Poetry.) The pauses between the acts should be duly adjusted; so that there are corresponding pauses in the action. The fifth act is the feat of the Catastrophe; which fee. For the several parts of tragedy, see Act, Action, Character, Fable, Plot, Manners, and Scene.

It has been a question much agitated among philosophical critics, how it comes to pass that those emotions of sorrow which tragedy excites, afford any satisfaction to the mind? Sorrow, it is faid, is a painful passion; feenes of misery exhibited in tragedies excite a degree of sympathy and agitation that occasions anguish and diftrefs. The spectators cannot suppress their feelings: they are indicated by their tears: and yet they applaud such exhibitions, and recur to them with satisfaction and pleasure. That such exhibitions should draw fuch crowds of spectators, and that they should be fo highly gratified by them, appears to be somewhat mysterious. The fact is acknowledged, and many hypotheses have been propofed for the fatisfaction expiained. In order to account for it, we can by no means recur to an innate principle of malice, which prompts us to extract delight from the fufferings of others, and as it were to enjoy their calamities. Dr. Campbell, in his "Philofophy of Rhetoric," (vol. i. chap. 11.) has detailed and examined the various hypotheses that have been devised by ingenious men for the solution of this difficulty. The theory of the abbe du Bos, in his "Reflections on Poetry and Painting," is as follows. Few things, according to him, are more difagreable to the mind; than that littlefelnies into which it falls, when it has nothing to occupy it, or to awake the paffions. In order to get rid of this moft painful fitation, it feeks with avidity every amusement and pufuit; buffoons, gaming, news, shows, public executions, romances; in short, whatever will roufe the paffions, and take off the mind's attention from itself. It mafts not what the emotion be, only the stronger it is, so much the better. And for this reafon, those paffions which, confidered in themselves, are the moft afflicting and difagreeable, are fuperior to the paffion, in as much as they moft effeétually relieve the fpirit from that oppreflive languor which preys upon it in a state of inactivity. They afford it ample occupation, and by giving play to its latent movements and springs of action, convey a paffion which more than counterbalances the pain.

Mr. Hume, in reference to this theory, obferves, that the fame object of delight which pleases in a tragedy, were it really felt before us, would, without doubt, give the moft undesigned uneafiness, though it fhoald be the moft effeétual cure of languor and indolence; and Dr. Campbell fafs, that the moft which can be concluded from the abbe's premife is, the utility of exciting paffion of fome kind or other, but nothing that can evade the superior ffinews of the diftrefful affections.

The next hypothesis is that of M. Fontenelle, in his "Reflexions fur la Poetique." According to this writer, pleafure and pain, which are two sentiments fo different in themselves, differ not fo much in their caufe. From the inftance of tickling it appears, that the movement of pleafure, pulsed a little too far, becomes pain; and that the movement of pain, a little moderated, becomes pleafure. Hence it proceeds, that there is fuch a thing as a forrow, loft and agreeable. It is a pain weakened and diminished. The heart likes naturally to be moved and affeeted. Melancholy objects fuit it, and even diftrefsful and sorrowful, provided they are softened by fome circumference. It is certain that, on the theatre, the representation has almost the effect of reality; but yet it has not altogether that effeét. However we may be hurried away by the fpectacle, whatever dominion the fenes and imagination may usurp over the reafon, there still lurks at the bottom a certain idea of fadness, in the whole of what we fee. This idea, though weak and dilguised, fuffices to diminifh the pain which we fuffer from the misfortunes of thofe whom we love, and to reduce that affeftion to fuch a pitch as converts it into a pleafure. We weep for the misfortunes of a hero to whom we are attached. In the fame inftant we comfort ourselves by reflecting, that it is nothing but a fiction: and it is pricipally that mixture of fentiments which compofes an agreeable forrow, and tears that delight us. But as that affeftion which is caufed by exterior and fensible objects, is ftronger than the confusion which arises from an internal reflection, they are the effects and fymptoms of forrow, which ought to prevail in the composition. To Mr. Hume this folution appeared juft and convincing; but to Dr. Campbell it appeared unfaflisfactory. The ingenious author begins with laying it down as a general principle, that however different the feelings of pleafure and of pain are in themfelves, they differ not much in their caufe; that the movement of pleafure, pulsed a little too far, becomes pain; and that the movement of pain, a little moderated, becomes pleafure. Dr. Campbell has fhown, that on this principle, exemplified in a few inftances, and not warranted by others more immediately connected with the subject in quefion, we are not juftified in founding a general theory. "The only truth," fays our author, "which I can difcover in the preceeding hypofhes is, that the mind, in certain cafes, avails itself of the notion of fadness, in order to prevent the refentment or narrative from producing too ftrong an effeét upon the imagination, and confequently to reliefe itself from fuch an excess of paffion, as could not otherwife fail to be painful. But let it be obferved, that this notion is not a neceffary concomitant of the pleafure that refults from pity, and other fuch affections, but is merely accidental. It was remarked above, that if the pathetic exceeds a certain measure, from being very pleafant it becomes very painful. Then the mind recurs to every expedient, and to difbelief amongst others, by which it may be enabled to difburden itfelf of what difrelevant it. And, indeed, whenever this recours is had by any, it is a fure indication that, with regard to fuch, the poet, orator, or historian, hath exceeded the proper meafure.

"But that this only holds when we are too deeply interefled by the fympathetic forrow, will appear from the following considerations: firfl, from the great pains often taken by writers (whofe defign is certainly not to shock, but to please their readers) to make the moft moving stories they relate, he firmly believed: secondly, from the tendency, in fome fondnefs of the generality of mankind, to believe what
what moves them, and their averfions to be convinced that it is a fiction. This can refult only from the confciousnings that, in ordinary cafes, difbelief, by weakening their pity, would diminish, instead of increafing, their pleafure. They must be very far then from entertaining Fontenelle’s notion, that it is neceffary to the producing of that pleafure; for we cannot well fufpet them of a plot againft their own enjoyment: thirdly, and laftly, from the delight which we take in reading or hearing the moft tragical narrations of orators and historians, of the reality of which we entertain no doubt; I might add, in revolting in our own minds, and in relating to others, diffticult incidents, which have fallen within the compass of our own knowledge, and as to which, confequently, we have an abfolute afurance of the fact.

The third hypothesis produced and examined by Dr. Campbell is Mr. Hume’s, which he propofes as a supplement to the former two, in the doctrine of both which he, in a great meafure, acquiesces. “What is it then,” says Mr. Hume, “which in this cafe (that is, when the forrow is not softened by fiction) raifes a pleafure from the bottom of uneafines, fo to speak; and a pleafure, which still retains all the features and outward symptoms of diftrefs and forrow? I anfwer: This extraordinary efffect proceeds from that very eloquence, with which the melancholy scene is prefented. The genius required to paint objects in a lively manner, the art employed in collecting all the pathetic circumstances, the judgment difplayed in difpofting them; the exercise, I fay, of thofe noble talents, together with the force of expreffion, and beauty of oratorical numbers, diffufe the highest satisfaftion on the audience, and excite the moft delightful movements. By this means, the uneafines of the melancholy passions is not only overpowered and efcafed by fomething fronger of an oppofite kind, but the whole movement of thofe passions is converted into pleafure, and aflwells the delight which the eloquence raifes in us. The fame force of oratory employed on an uninterefting fubjeét, would not pleafe half fo much, or rather would appear altogether ridiculous; and the mind, being left in absolute calmnes and indifference, would relift none of thofe beauties of imagination or expreffion, which, if joined to paffion, give it luch exquifite entertainment. The impulfe or vehemence arifing from forrow, compaffion, indignation, receives a new direction from the fenfiments of beauty. The latter being the predominant emotion, feize the whole mind, and convert the former into themselves, or at leaft tincture them fo strongly, as totally to alter their nature; and the foul, being at the fame time roufed by paffion, and charmed by eloquence, feels on the whole a strong movement, which is altogether delightful.”

The insufficiency of this hypothesis is very fatisfactorily evinced by Dr. Campbell; and he has fhewn, that inftead of being supplementary to M. Fontenelle’s, as he intended it to be, it is subservive of the principles on which the French critic’s theory is founded. The effeét, according to the latter, refults from moderating, weakening, softening, and diminishihng the paffion: according to the former, it refults from what is direcdy oppofite, from the arts employed by the orator for the purpofe of exaggerating, altenating, heightening, and inflaming the paffion. Indeed, neither of thofe writers feems to have attended sufficiently to one particular, which of itfelf might have fhewn the insufficiency of their ftems. The particular alluded to is, that pity, if it exceed not a certain degree, gives pleafure to the mind, when excited by the original objects in diftrefs, as well as by the rcprefentations made by poets, painters, and orators; and, on the contrary, if it exceed a certain degree, it is on the whole painful, whether awakened by the real objects of pity, or roufed by the exhibitions of the historian or of the poet. Indeed, as fenee operates much more strongly on the mind than imagination does, the excess is much more frequent in the former cafe than in the latter. But our limits will not allow our enlarging.

A fourth hypothesis is that of thofe who maintain that compaffion is “an example of unmixed felfifhnefs and malignity,” and may be “referred into that power of imagination, by which we apply the misfortunes of others to ourfelves;” that we are laid “to pity no longer than we fancy ourselves to suffer, and to be pleased only by refleeting that our fufferings are not real; thus indulging a dream of diftrefs, from which we can awake whenever we please, to exult in our fecurity, and enjoy the comparison of the fiction with truth.”

This is no other, as Dr. Campbell obferves, than the antiquated doctrine of the philofopher of Malmebury refuced from oblivion, to which it had been faft defending, and re-published with improvements. Hobbes, indeed, thought it a fufficient reftretch, in order to render the sympathetic forrow purely felfifh, to define it “imagination or fiction of future calamity to ourfelves, proceeding from the fene of another man’s calamity.” This paradoxical conceit, as our author has denominated it, has been adopted by Hawkeftowf in the “Adventurer.” In the felfifh fystem, it appears to be a great objeétion, that in pity we are affected with a real forrow for the fufferings of others, or at leaft that men have univerfally underftood this to be the cafe, as appears from the very words and phrases expreffive of this emotion to be found in all known languages. But to one who has thoroughly imbibed the principles and fpirit of a philofophic fect, which hath commonly as violent an appetite for myffery (though under a different name, for with the philofopher it is paradox) as any religious fect whatever; how paltry must an objeétion appear, which hath nothing to fupport it but the conviction of all mankind, thofe only excepted whole minds have been perverted by feholastic fophiftry?

It is remarkable, that though it has been contended by a great number of perfon’s, that some fiction of the imagination is absolutely neceffary to the production of pity, and that the examples (to which we are fo frequent, as to give ample scope for examination, they disagree with re-gard to their fiction. Some contend only, that in witneffing tragedy, one is under a sort of momentary decepfion, which a very little reflection can correct, and imagines that he is actually witneffing thofe diftrefses and miferies which are only reprefented in borrowed characters, and that the actors are the very perfon’s whom they exhibit.

Others, who refer every thing to felf, maintain, that by a fiction of the mind, we infantly conceive fome future and fimilar calamity as coming upon ourfelves; and that it is folely this concepion, and this dread, which call forth all our forrow and our tears. Others not fatisfied with this, maintain boldly, that we conceive ourfelves to be the perfon’s fuffering the miferies related or reprefented, at the very infant that our pity is raifed. When nature is deftroyed by us, it is no wonder that we fhould lose our way in the devious tracks of imagination, and not know where to fettle.

Dr. Campbell’s hypothesis is illuftrated by the following general obfervations, of which the following detail is an abftract. He obferves, if, that almofl all the fimple paffions, of which the mind is fucceptible, may be divided into two claffes, viz. the pelfiant and the painful, differing confiderably both in kind and degree. zedly. Among the paffions,
TRAGEDY.

passions, as well as among the ideas of the mind, there is an attrac
tion or affection. 5thly. Pain of every kind generally makes a
deeper impression on the imagination than pleasure does, and is longer retained by the memory. 6thly. From a
group of passions associated together, and having the same
effect, some of them pleasant, and others painful; if the
pleasant predominate, there arises often a greater and a more
durable pleasure to the mind, than would result from thefe,
if alone and unmixed. 5thly. Under the name pity may be
included all the emotions excited by tragedy. It has been
usual, however, to comprehend pity and terror under the
class of passions that are moved by tragedy; but our author
observes, that this enumeration is more popular than philo-
sophical, though adopted by the Stagirite himself. For
what is pity but a participation by sympathy in the woes of
others, and the feelings naturally consequent upon them, of
whatever kind they be, their fears as well as sorrows:
whereas, this way of contradiflinging terror from pity,
would make one, who knew nothing of tragedy but from
the definition, imagine, that it was intended to make us
compassionate others in trouble, and dread mischief to our-
selves. If this were really the case, Dr. Campbell thinks
there are few or none who would find any pleasure in this
species of entertainment. If all the sympathetic affections
excited by theatrical representations were enumerated, our
author cannot see why hope, indignation, love and hatred,
gratitude and resentment, should not be included as well.
6thly. Pity is not a simple passion, but a group of
passions intricately united by association, and as it were,blended,
by centering in the same object. Of these, some are plea-
sant, some painful, but commonly the pleasant preponderate.
In pity there are three different emotions: self, commiser-
ation, purely painful; secondly, benevolence, or a desire of
the relief and happiness of the object pitted, a passion, as was
already observed, of the intermediate kind; thirdly, love,
in which is always implied one of the noblest and most ex-
quite pleasures whereof the soul is susceptible, and which
is itself, in most cases, sufficient to give a counterpoise
of pleasure to the whole.
The principal pleasure in pity arises from its own nature,
or from the nature of those passions of which it is com-
pounded, and not from any thing extrinsic or adventitious.
Nevertheless, certain adventitious circumstances may contrib-
ute to heighten the effect; but they cannot be regarded as
effential to the passion. Of this fort is the satisfaction which
arifeth from a fene of our own cafe and security, compared
with the calamity and the danger of another.

"'Tis pfeafant, fafely to behold from shore
The roling flip, and hear the tempeft roar:
Not that another's pain is our delight;
But pain unfelt produce the pleafing fight.
'Tis pfeafant alfo to behold from far
The moving legions mingled in the war."

Another adventitious fource of pleafure is, the fatisfac-
tion that refults from the confcious exercife of the humane
affections, which it is our duty to cherifh and improve.
Senfe, as we have frequent occafion to observe, invariably
makes a stronger impression than memory, and memory a
stronger than imagination; yet there are particular circum-
stances which appear to form an exception, and to give an effec-
tivity to the ideas of imagination, beyond what either me-
memy or fene can boaft. So great is the anomaly which
sometimes displays itfelf in humane characters, that it is not
impoible to find persons who are rapidly made to cry at
feeing a tragedy, or reading a romance, which they know to
be fictitious, and yet are both inattentive and unfelcing in
Vol. XXXVI.

respect of the actual objects of compaffion who live in their
neighbourhood, and are daily under their eye.

Men, fays our author, may be of a felfifh, contracted,
and even avairicious disposition, who are not what we
ought to denominate hard-hearted, or insensible of sympathetic
feeling. Such will gladly enjoy the luxury of pity, (as
Hawkefworthis terms it,) when nowe interfieres with their
more powerful passions; that is, when it comes unaccom-
panied with a demand upon their pockets. With the tragic
or the romantic hero or heroine they moft cordially sympa-
thie, because the only tribute which wretches of their dig-
ity exact from them is fighs and tears. And of these their
confidences inform them, to their inexprefible conflation,
that they are no niggards. But the cafe is totally different
with living objects. Barren tears and fighs will not satify
thefe. Hence it is that people's avarice, a moft formidable
adversary to the unhappy, is interefled to prevent their
being moved by fuch, and to make them avoid, as much as
possible, every opportunity of knowing or feeing them.
See this observation admirably exemplified in the parable of
the compassionate Samaritan, Luke, x. 30. Our author
concludes with obferving, that compaffion alone, efpecialy
that displayed on occasion of witneffing public spectacles, is
at felf but a very weak evidence of philanthropy.

Dr. Blair, agreeing in the main with the hypothesis of
Dr. Campbell, introduces the following obfervations on this
fubjeft, which we cannot forbear transcribing. "By the
wife and gracious constitution of our nature, the exercife
of all the focial passions is attended with pleafure. Nothing
is more pleafing and grateful than love and friendship.
Where-
ever man takes a frong interefl in the concerns of his fellow-
creatures, an internal fatisfaction is made to accompany the
feeling. Pity, or compaffion, in particular, is, for wife
ends, appointed to be one of the frongest inftruments of our
frame, and is attended with a peculiar attractive power.
It is an affection which cannot but be productive of fome
diftrefs, on account of the compaffion with the fufferers,
which it necessarily involves. But, as it includes benevo-
ence and friendship, it pastakes, at the fame time, of the
agreeable and pleafing nature of fome affections. The heart
is warmed by kindnefs and humanity, at the fame moment
at which it is afflicted by the diftrefs of thofe with whom
it sympaffhes: and the pleafure arifing from thofe kind
emotions prevails fo much in the mixture, and fo far coun-
terbalances the pain, as to render the flate of the mind,
upon the whole, agreeable. At the fame time, the imme-
diate pleafure, which always goes along with the operation
of the benevolent and sympathetic affections, derives an
addition from the approbation of our own minds. We are
pleafed with ourfelves for feeling as we ought, and for en-
tering, with proper forrow, into the concerns of the afflicted.
In tragedy, besides, other adventitious circumstances concur
to diminish the painful part of sympathy, and to increafe
the fatisfaction attending it. We are, in fome meafure, reliev-
ed, by thinking that the caufe of our diftrefs is fcigned,
not real; and we are also gratified by the charms of poetry,
the propriety of fentiment and language, and the beauty of
action. From the conccrnce of thofe caufes, the pleafure
which we receive from tragedy, notwithstanding the diftrefs
it occafions, feems to me to be accounted for in a fatisfac-
tory manner. At the fame time, it is to be obferved, that,
as there is always a mixture of pain in the pleafure, that
pain is capable of being fo much heightened, by the repre-
sentation of incidents extremely direft, as to check our
freedom of mind, and to render us averse, either to the reading
of fuch tragedies, or to the beholding of them upon the
stage."

Under the general head of the unity of action, to which
TRAGEDY.

after a long digression we now return, it may not be improper to make a few remarks on the conduct of the several scenes which make up the acts of a play. See Scene.

The entrance of a new personage upon the stage forms, what is called, a new scene. These scenes, or successive conversations, should be closely linked and connected with each other. For this purpose, two rules should be regarded. The first is, that, during the course of one act, the stage should never be left vacant; for whenever the stage is evacuated, the act is closed. This rule is very generally observed by the French tragedians; but the English writers, both of comedy and tragedy, seldom pay any regard to it. The second rule, little better regarded by English writers than the former, is, that no person should come upon the stage, or leave it, without a reason appearing to us, both for the one and the other.

In order to render the unity of action more complete, critics have added the other two unities of time and place. The unity of place requires, that the scene should never be shifted; but that the action of the play should be continued to the end, in the same place where it is supposed to begin. The unity of time, strictly taken, requires, that the time of the action be no longer than the time that is allowed for the representation of the play; though Ariosto seems to have given the poet a little more liberty, and permitted the action to comprehend the whole time of one day. During the course of each act, the unities of time and place ought to be strictly observed; that is, during each act the scene should continue the same, and no more time should be passed to pass, than is employed in the representation of that act. This is a rule which the French tragedians regularly observe. To violate this rule, as is too often done by the English; to change the place, and shift the scene in the midst of one act, shews great incorrectness, and destroys the whole intention of the division of a play into acts. Mr. Addison’s “Cato” is remarkable beyond most English tragedies for regularity of conduct. The author has limited himself, in time, to a single day; and in place, has maintained a most rigorous unity. The scene is never changed; and the whole action passes in the hall of Cato’s house, at Utica.

The characters most proper to be exhibited in tragedy have been usually considered by writers on this subject. (See Character.) Several critics require that the principal personages should be of high or princely rank, because their misfortunes and sufferings interest the imagination, and impress the heart more forcibly, than those of persons in humbler condition or more private life. But this observation is more specious than solid, and is refuted by facts. The dietresses of Delfdemoa, Monimia, and Belvlera, affect us as much as if they had been princesses or queens. The moral characters of the perfons represented are much more important than the external circumstances in which they are exhibited. The personages presented to view, and the incidents relating to them, should be so described, as to leave upon the spectators impressions favourable to virtue, and to the administration of Providence. Mixed characters, such as occur in the world, afford the most proper field for displaying, without any bad effect on morals, the vicissitudes of life; and they interest us the more deeply, as they display emotions and passions, of which we have all been conscious. The subjects of the ancient Greek tragedies were too often founded on mere delity, and inevitable misfortunes; and though in the course of the drama, many moral sentiments occurred, the instruction conveyed by the fable of the play was seldom any more than that reverence was owing to the gods, and submifion due to the deities of delity. Besides, their tales about oracles, and the vengeance of the gods, led to many incidents more melancholy and tragic than moral and useful. Modern tragedy has aimed at a higher object. An Othello, hurried by jealousy to murder his innocent wife; a Jaffier, ensnared by repentent and want to engage in a conspiracy, and then flung with remorse, and involved in ruin; a Sifred, through the deceit which he employs for public spirited ends, bringing destruction on all whom he loved; a Calista, induced into a criminal intrigue, which overwhelms herfelf, her father, and all her friends in misery: these, and such as these, are the examples which tragedy now displays to public view; and by means of which, it inculcates on men the proper government of their passions.

The sentimens of a tragedy should be suited to the characters of the persons to whom they are attributed, and to the situations in which they are placed. Moral sentiments and reflections should not occur too often, because they would thus lose their effect, and they would render the play pedantic and declamatory. This is the character, in a great degree, of Seneca’s tragedies. Nevertheless, moral reflections, properly introduced, give dignity to a composition, and, on many occasions, are extremely natural. Much of the merit of Addison’s Cato depends upon that moral turn of thought which distinguishes it. The fyle and verfification of tragedy should be free, easy, and varied. Our blank verse is happily suited to this purpose. The fyle of tragedy ought always to poffefs force and dignity, but at the fame time that ease and brifkness, which are adapted to the freedom of dialogue, and the fluctuations of passion.

Of the Greek tragedy and tragedians we have already given some account. In the compositions of some of the French dramatic writers, particularly Corneille, Racine, and Voltaire, tragedy has appeared with much Iuftrce and dignity. But though they have improved upon the ancients; though they are attentive to all the unities, and to all the decors of sentiment and morality; and though their fyle is generally very poetical and elegant; yet they want fervour, strength, and the natural language of passion; too declamatory, when they should be paffionate; and too refined, when they should be simple. These defects of the French theatre are freely acknowledged by Voltaire. (See their respective biographical articles.) The general character of tragedy in Great Britain, is, that it is more animated and passionate than French tragedy, but more irregular and incorrect, and less attentive to decorum and to elegance. See the biographical articles of Shakespear, Dryden, Otway, Rowe, Young, Congreve, Thomson.

We shall close this account of tragic compositions with the following extract from Dr. Blair’s Lectures, vol. iii.

“An Greek tragedy is the relation of any diftrifful or melancholy incident; sometimes the effect of passion or crime, oftener of the decease of the gods, simply expofed; without much variety of parts or events, but naturally and beautifullly fet before us; heightened by the poetry of the chorus. A French tragedy is a series of artful and refined converfations, founded upon a variety of tragical and interesting situations; carried on with little action and vehemence; but with much poetical beauty, and high propriety and decorum. An English tragedy is the combat of strong passions, fet before us in all their violence; producing deep diftrefs; often irregularly conducted; abounding in action; and filling the spectators with grief. The ancient tragedies were more natural and simple; the modern are more artful and complex. Among the French, there is more correctness; among the English, more fire. Andromaque and Zayre, soften; Othello and Venice Prefered, rend the heart. It deferves remark, that three of the greatest masterpieces of the French tragic theatre turn wholly upon religious subjects: the Athalie of Racine, the Polythee of Corneille, and the Zayre of Voltaire. The first is founded upon an historical
hitorical passage of the Old Testament; in the other two, he differentiates from the zeal and attachment of the principal personages to the Christian faith: and in all the three, the authors have, with much propriety, avoided themselves of the majesty which may be derived from religious ideas."

The English received the first plan of their drama from the French, among whom it had its first rise towards the end of the reign of Charles V. under the title of the chantroyal; which consisted of pieces in verse, composed in honour of the Virgin, or some of the saints, and sung on the flag: they were called by the title chantroyal, because the subject was given by the king of the year, or the person who had borne away the prize the year preceding.

The humour of these pieces took wonderfully among the people, in so much that in little time there were formed several societies, who began to vie with each other in them; and one of these, to engage the town from the rest, began to intermix various incidents or epistles, which they distributed into autos and scena, and had as many different persons as were necessary for the representation.

Their first essay was in the Bourg St. Maur, and their subject the passion of our Saviour. The prévôt de Paris prohibiting their continuing of it, they made application to court; and to render it the more favourable to them, erected themselves into a frawy, or fraternity, under the title of "Brothers of the Passion!" which title has given some occasion to suspect them to have been an order of religious.

The king, on seeing and approving some of their pieces, granted them letters of establishment in 1464, upon which they built a theatre, and for an age and a half acted none but grave pieces, which they called moratiliti; till the people growing weary of them, they began to intermix farces or interludes taken from profane subjects. This mixture of farce and religion displeasing many, they were re-established by an act of parliament in 1548, on condition of their acting none but profane, yet lawful and decent subjects, without intermeddling with any of the mysteries of religion; and thus were the Brothers of the Passion depoited of their religious character; upon which they mounted the flag no more in person, but brought up a new set of comedians, who acted under their direction.

Thus was the drama established, and on this foundation arrived in England. In process of time, as it was improved, it became divided into two branches, agreeable to the practice of the ancients, and the nature of things, e. g. into tragedy and comedy properly so called; and this last again was subdivided into pure comedy and farce. See each under its proper head, Comedy, &c.

TRAGEDY, Hilario. See Hilario-tragedia.

TRAGEIN, in Geography, a town of Austria; 10 miles E.N.E. of Steyregg.

TRAGELAPHUS, in Zoology. See Cerbus and Ovis.

TRAGEN, in Geography, a town of Africa, in Fezzan; 25 miles E. of Mourzouk.

TRAGIA, in Botany, received its name from Plinius, in memory of Hieronymus Tragus, or Jerome Bock, a famous old German botanist, who was both a divine and a physician, and discovered a number of rare plants in Germany, which Haller enumerates, Bibl. Bot. v. 1. 266. He is chiefly known to us by the Latin edition of his herbal, published in quarto by David Kyber in 1552, with a learned historical preface, by his illustrious friend Conrad Gesner. Some of the cuts, often coloured, give a ludicrous exhibition of the medical qualities of the plants, or of some particulars in their history. Tragus died in 1554, aged 56.

Adanfon always called him Le Bouc, as if we were to say in English Mr. He-goat; and would not retain the Linnaean name of the present genus, preferring that used in the Hortus Malabaricus, Scherrigernum, spilling it, by a fatality incident in orthography, to many of his countrymen, Scherigerum, which blunder he seems to have copied from Linnaeus. Nobody has attended to this erudite alteration.


Gen. Ch. Male, Col. Perianth in three deep, ovate, acute, flat, spreading segments. Cor. none. Stem. Filaments three, the length of the calyx; anthers roundish.

Obs. Linnaeus remarks, that Plunier took this calyx for a funnel-shaped monopetalous corolla.

Female, on the same plant, Col. Perianth inferior, in five, sometimes six, deep, ovate, concave, acute, permanent segments. Cor. none. Pf. Germ. Superior, roundish, with three furrows; style one, erect, longer than the calyx; stigma in three spreading segments. Petiole. Capsule of three globular lobes and three cells, brilly, each cell marked at the base externally with a pair of dots. Seeds solitary, globose.

Eif. Ch. Male, Calyx in three deep segments. Corolla none.


Obs. Some species have the style more or less deeply split into three parts.

Tragia is an unsightly genus, with the aspect of a nettle, or a Crotan. The flowers are green and inconspicuous; the herbage mostly hifpid or hairy; the stem either twining, often shrubby and perennial; or erect, herbaceous, with an annual root.

Sect. 1. Stem climbing.

1. T. volubilis. Twining Tragia. Linn. Sp. Pl. 1390. Willd. n. 1. Ait. n. 1. "Trew Pl. Rar. v. 2. t. 15." Lamarck f. 1. (T. ala scandens, urticce folio; Plum. Ic. 251. t. 252. f. 2.) — Leaves ovate, somewhat heart-shaped, pointed, strongly serrated, rather hairy. Foot-flaks brilly above. Segments of the female calyx undivided. Stem twining. — Native of dry, calcareous situations in the Weft Indies, blooming in our flowers in June and July, provided it be admitted there. The stem is round, hairy, leafy, branched, twining from recht to east. Leaves alternate, about two inches long; paler beneath. Flowers axillary; the males in long bracteate clusters; the females solitary, on a long flalk at the base of each cluster. Capsule the size of a large pea. Brown's specimen has the leaf more soft and downy beneath than in the original one from the Upfield garden. Whether the 8 of Linnaeus, Plum. Ic. t. 252. f. 1. be a variety, or a distinct species, we have no means of determining.

2. T. cordata. Heart-leaved Tragia. Vahl Symb. v. 1. 76. Willd. n. 2. (Jatropha pungens; Forl. Egypt.-Arab. 163.) — "Leaves heart-shaped, pointed, serrated; brilly beneath. Segments of the female calyx pinnatifid, hairy. Stem twining." — Gathered by Forskall near Yemen, in Arabia Felix, where it is called Hâreklat, Mehberkia, or Hâm-jia. Vahl says the stem is shrubby, twining, and, like the whole plant, brilly. Leaves paler beneath. Stipula terminal.

3. T. hispida. Brilly Tragia. Willd. n. 3. — "Leaves lancelate;
TRAGIA.

lanceolate, pointed, hispid, nearly entire; heart-shaped at the base. Segments of the female calyx pinnatifid, rough with bristles. Stem climbing. —Native of the East Indies. Leaves on very short, very hispid footstalks, mostly brightly beneath, two inches long, occasionally furnished with an oblong tooth at the base, or near the point. Spike axillary, flaked. Calyx densely covered with white bristles.

4. T. macrocarpa. Large-fruited Tragia. Willd. n. 4. Pursh n. 3. (T. cordata; Michaux Boreae-Am. v. 2. 176.) — "Leaves ovate, sharply toothed, hispid; deeply heart-shaped at the base. Stem twining." —Found by Michaux in Kentucky. Annual, flowering in July. Pursh. Each lobe of the calyx is said to be the size of a large pea.

5. T. villosa. Shaggy Tragia. Thunb. Prodr. 14. Willd. n. 5. — "Leaves heart-shaped, crenate; hairy beneath. Stem climbing." —Gathered at the Cape of Good Hope by Thunberg, who alone appears to have seen this or the next species.


Sect. 2. Stem erect, herbaceous.


The name of urens seems to have remained with this species on the authority of Plukener. Its pubescence appears to be of a very fine kind; nor has any recent botanist attributed it to any flinging property. The herb of the herb is like a Mercurialis. The leaves are from one to two inches long, very variable in breadth; usually deeply toothed, or almost sinuate; rarely linear and entire. Clusters axillary, longer than the leaves. Capules slightly hairy.

13. T. Chamaelea. Lance-leaved Tragia. Linn. Sp. Pl. 1391. Willd. n. 13. Ait. n. 4. Lamarck n. 13. (Chamaelea foliis linearibus, foliis aspicatis, echinato frutet; Burm. Zeyl. 59. t. 250. Cod. avanacu; Rhodee Hort. Mal. v. 2. 63. t. 34.) —Leaves linear-lanceolate, ferrated, obsdite, fringed with close bristles. Stem branched, diffuse. Lobes of the capule toothed at the back. —Native of the East Indies, in gravel places; rare on the coast of Malabar. It was first in 1793 by Dr. Roxburgh to Sir Joseph Banks, and flowered in the rose at Kew, in the middle of summer. The root is annual. Herb twice or eighteen inches high, nearly smooth, and somewhat glaucous. Stems slender, angular, diffuse. Leaves very variable in length and breadth, undivided, entire, curiously fringed with dense, close, white, callous, bristly teeth. Clusters small, pimpled, axillary. The lowest leaves are sometimes nearly orbicular.


6. Croton urens; Linn. Sp. Pl. 1426. (Ricinus urens, cannabinae foliis triphillos; Pluk. Phyt. t. 120. f. 6.) —Leaves deeply three-lobed, or ternate, toothed; the middle lobe longest; ribs most bristly beneath. Stem erect. —Native of the coast of Malabar, in gravel places. A perennial herb, whose foliage bears a considerable resemblance to the Venice Mallow, Hibiscus Triumnum. The lobes of the leaves are obtuse, jagged and toothed, bristly on both sides, but particularly along the ribs and veins beneath the. The footstalks and branches are also bristly. Clusters on long, axillary, very bristly, flaky. Calyx of the fruit pinnatifid, thickly covered, as well as the capule, with pale rigid bristles. When the lobes of the leaves are quite separate to the very base, the plant becomes Croton urens of Linneus; but this affords no permanent specific distinction. Plukener's figures of both varieties are infinitely preferable to Durmarn's plate.

Sect. 3. Stem erect, frutaceous.

prickly.—Native of the East Indies. Commeron gathered it in the Mauritius. The stem is shrubby or perhaps arborescent, with angular branches, finely downy when young. Leaves flat, two or three inches long; their midrib and margin flayed with a vireous red, as are sometimes the fine transverse veins. Stiripatæ rounded. Flowers all axillary; the males in dense spiral spikes, sometimes compound, half the length of the leaves; females solitary, sessile, separate from the males, though sometimes on the same branch. Capsule befit with stout spines.

16. T. marginata. Pale-bordered Tragia. Lamarck n. 10. —Leaves ovate-lanceolate, acute, toothed; finely downy on both sides. Stem erect. Male flowers in axillary cylindrical spikes. Capsule hairy.—Gathered by Commeron in the isle of Bourbon. The young branches are finely downy, as well as the footstalks, spikes, and foliage. Leaves three or four inches long, sometimes more, dilated by a pale marginal discoloration, more or less dilated or limited. Male spikes somewhat flaked, two inches in length. The female flowers we have not seen. The capsule is said to be hairy; its calyx deciduous.

17. T. reticulata. Reticulated Tragia. Lamarck n. 11. —Leaves ovate, obtuse, smooth; reticulated with fine veins beneath. Stem erect. Male flowers in lax, finely downy clusters.—Gathered in the isle of Bourbon, by Commeron, whose specimén is before us, agreeing in every point with the description of M. Poiré in Lamarck, except that the leaves are not crenate, but quite entire. They are an inch or two long, thin, not coriaceous, obtuse at the base, pale and shining at the back. The branches are woody, much divided, round, smooth, scarred with pale warts. Male clusters about the ends of small lateral shoots, somewhat flaked, an inch and half long. Flowers on short, distant, partial spikes, with a little bractea at the base of each. We know nothing of the female flowers, or the capsules.

18. T. irigata. Wand-like Tragia. Lamarck n. 15. Illust. t. 754. f. 2. —Leaves on short stalks, ovate-lanceolate, acute, serrated, smooth. Stem erect. Male spikes axillary, as long as the leaves.—The native country of this species has not been ascertained. We know it only from the materials above cited. The leaves are delineated about an inch long, strongly serrated. If the plate be exact, the female flowers compose a long lax terminal spike, and the segments of their calyx are finely pinnatifid. But of this nothing is said in the description. The male spikes are like those of several preceding species in the present section, axillary, solitary, slightly flaked.

19. T. filiformis. Thread-shaped Tragia. Lamarck n. 16. —Leaves ovate-lanceolate, pointed, smooth, dilately toothed. Stem erect. Spikes thread-shaped. Bracteas of the female flowers rounded, very large.—Described by Poiré from Lamarck's herbarium. We have seen no specimén. The stem is shrubby, with smooth, cylindrical, flattened branches. Leaves thin, an inch or two long, pale green, blunt with a point, smooth on both sides, on almost capillary smooth footstalks, half an inch long, accompanied by falcate bracteas. Flowers in very slender axillary spikes; the male minute, greenish, sessile; females in the lower part of the same spike, accompanied by very large, roundish, smooth, somewhat crenate bracteas, which give this plant the aspect of an Acalypha. Poiré.

We are posséd of several incomplete and undetermined speciméns, which by their habit should feem probably to belong to this last fection, but there being no positive certainty of their genus, we must leave them undescribed.

TRAGIC DANCE. See Emmelia.

TRAGI-COMEDY, a kind of dramatic piece, representing fome action passed among eminent perons, the event of which is not unhappy or bloody, and in which is sometimes admitted a mixture of fels serious characters.

The ancients, M. Dacier observes, knew nothing of fuch compositions, in which the serious and comic are blended; nor does the epître M. Corentin give them, of heroic comedies, exclude their irregularity.

Their foundation is certainly bad; for, endeavouring both to make us laugh and cry in their turns, they endea- vour at contrary emotions, which the heart can never undergo; every thing that disposes for the one, indiposing for the other.

The tragi-comedy was formerly very common on the English stage; there was farce, or a thing in the fever- seventeenth century as a pure tragedy, without a spice of comedy or farce to make the people laugh. Now that the stage and our tale are brought nearer to the model of nature and the ancients, the tragi-comedy is diffused.

Tragi-comedy is the only cafe wherein comedy is allowed to introduce kings and heroes.

TRAGICUS, in Anatomy, a muscle of the external ear. See EAR.

TRAGILUS, in Ancient Geography, a town of Thrace, between the Chersonesus and Macedonia. Steph. Byz.

TRAGIUM, in Botany, a new umbelliferous genus of Sprengel's, separated by him from PLIMPINELLA; see that article. The name is borrowed from Dioscorides, whose TEGNUS appears to belong to our PLIMPINELLA, and has been so denominatod from TEGUS, a goat; because when the wild goats fed upon it, the arrows with which they were wounded would drop out; as Ælian relates of the Cretan Dittany.—Sprengel Prodr. Umbellif. 26.—Clafs and order, Pentandria Digynia. Nat. Ord. Umbellata, Linn. Sect. 5. frutica armata, Sprengel.

The learned author whom we have just quoted, in his new mode of arranging the Umbelliferæ, of which, as well as of other attempts of the fame kind, we propofe to treat hereafter in its proper place, lays considerable stress on the hairy or brilly clothing of the feeds in some species. Such are all separated by him from thofe with smooth feeds, and difposed in different genera, compofing by themselves a particular fection characterized of frutica armata. Among them is TRAGIUM, distinguished from PLIMPINELLA chiefly by the circumstance just mentioned, and the almost total abfence of ribs to the feeds.


Obf. The ftemp, commiffura, is the line by which the two feeds touch each other.

The species enumerated by profefsor Sprengel are

1. T. Colurnna. (Pimpinella Tragium of Villars. See our PLIMPINELLA, p. 4, where notice is taken of the importance of the downief of the feeds, as a foefic distinction; and where for COLUMNA read Colurnna.)


3. T. aromaticum. (P. aromatica; March. a Bieberli. Taur.-Cauc. v. 1. 241.)—"Woely with down. Leaves pinnate; leaflets all wedge-shaped, lineated; with deep fur- ratureis at the extremity."—Native of the borders of woods, and banks of torrents, on the east side of mount Caucaius, flowering in July. Root biennial. Akin to PIMPINELLA Anisum, with which it exactly agrees in the shape and smell of its feeds. But the present plant has all the leaves pinnate and glaucous, more flirightly frisated, or nipped, and the seeds are downy.

4. T. villifimum. (Pimpinella villofa of Schousboe; unknown to us.)

5. T.
5. T. Broteri. (P. bubonoides; n. 5.)

The fruit of this last is much more hairy than that of the first species. On a review of the whole genus of *Pimpinella*, there appears to us not the slightest difference in the form of the seeds, nor in the diffuseness of the ribs in the several species, except that the latter are concealed by the hairs in *P. bubonoides*, though this is by no means the case in *P. Tragium*, whole ribs are more prominent than in any other under our inspection. There seems to be no reason for changing the specific name *bubonoides*, which is singularly expressive of the habit of the plant.

*Tragium Germanicum*, a name given by some authors to the *atriplex alba*, or living orach.

TRAGOI, in Geography, a town of Bulgaria; 24 miles E. of Ternova.

TRAGONELLE, a town of Africa, in the kingdom of Bambouk.

TRAGONERA. See Dragoneera.

TRAGONICE, in Ancient Geography, a town of Aisa, in the interior of the Periade, according to Ptolemy and Ammianus Marcellinus.

TRAGONISI, or Dragonis in Geography, an island in the Grecian Archipelago, so called from the number of goats, which are almost its only inhabitants; 2 miles W. of Myconis, N. lat. 39° 27', E. long. 25° 36'.

*Tragopogon*, in Botany, Goat’s-beard, from *trago*, a goat, and *poos*, a beard, a name adopted from Dioscorides, whose *tragonos* may very well belong to the genus which now bears it. His description applies in every particular to our *T. porrifolius*, except the shortness of the stem. He says it is "an eatable herb, with leaves like Garlic or Saffron, a short stem, a long sweet root, with a large flower-cup on the top of the stalk, and a black, or dark, feed," according to some readings, "of whence," it is observed, "the name is derived." But Scaracenus, the best commentator on this ancient author, instead of καλυξ μυκώς, and κατος μαλακ, would read καλυξ μικρος and κατος μυκώς; for he justly remarks that "a black seed could never have given rise to the name of Goat’s-beard." With this explanation, the dark calyx, and the large pappus, or feed-down, are intelligible enough, as describing the deep purple florets lining the calyx, and the feathery feed-down, of *T. porrifolius*. So Matthias likewise understands the matter. Dr. Sibthorp indeed did not meet with this plant in Greece, and it finds a place in his *Prodr. Fl. Græc.* merely as having been observed by the abbate Seftini, near Constantinople; but it might have been cultivated in Greece, as well as elsewhere.—Linn. Gen. 398. Schreb. 525. Willd. Sp. Pl. v. 3. 1492. Mart. Mill. Dict. v. 4. Sm. Fl. Brit. 812. Prodr. Fl. Græc. Sibth. v. 2. 120. Ait. Hort. Kew. v. 4. 432. Jaff. 170. Lamarcch Illustr. t. 640. f. 1. Geitna. t. 159. T. pratensis.—Clas and order, *Ammi*; Synonym, *Polygama-equis.* Nat. Ord. *Composita*—*Senecio.* Linn. Cibaraceae, Jaff.

3. *T. undulatus*. Wave-leaved Goat’s-beard. *Jacq. Misc.* v. 2. 316. *C. Rar. t. 157*. Willd. n. 2.—Calyx as long as the corolla. Leaves lanceolate, rough-edged; recurved at the point; somewhat ovate at the base.—Supposed to be a native of Siberia, the seeds having been sent to Jacobin by Pallis. We have seen no specimen. The leaves appear to be broader at the base, and less shining, than in the foregoing, and their points rather revolute than falcate. The flowers, which open at sun-rise, and close about ten in the forenoon, for three succedaneous days, are usually whitish; in some individuals rose-coloured, with red stigmas; in others yellow, with purple ones; but these varieties are not common from feed.

4. *T. orientalis*. Oriental Goat’s-beard. Linn. Sp. Pl. 1199. Willd. n. 4. Ait. n. 3. (Barbula hirici; Camer. Epit. 312.)—Calyx shorter than the corolla. Leaves tapering, somewhat wavy, with spiral points.—Found by Tournefort in the Levant, and by Camerarius, as it seem, in Germany. M. Thouin sent feeds to Kew garden in 1787. It is a hardy biennial, flowering, like all the foregoing, in June and July; nor does the plant seem to differ much from the first, or moit common, kind, except in the greater size of its golden flowers, whose marginal florets extend far beyond the calyx.

TRAGOPOGON.


6. T. major. Great Goat's-beard. Jacq. Auct. v. 1. t. 19. n. 6. Wild. n. 4. Marfch. von Bieberlf. Taur.-Caucas. v. 2. 233.—Calyx longer than the corolla. Leaves tapering, straight. Flower-flalks swelling upward. Flores round at the tip.—Native of meadows, vineyards, &c. in Germany and Austria, as well as near Branson, in Switzerland, where it was found blooming in Aug. by the late Mr. Davall, who sent its seeds to Kew in 1788, and whose own specimen is now before us. The gradual dilatation of the flower-flalks upward, the great size of the flowers, at least of their calyx, which extends much beyond the corolla, and consist of a greater number of leaves than the generic character requires, even as many as twelve or thirteen; these circumstances led Jacquin to consider the present plant as a distinct species from T. pratensis, or at least as a remarkable variety. We believe it remains confant from seed. Some of the preceding are but too nearly akin, or this ought to stand next to the pratensis.

7. T. porrifolius. Purple Goat's-beard, or Saffafae. Linn. Sp. Pl. 1110. Wild. n. 7. Fl. Brit. n. 2. Engl. Bot. t. 638. Jacq. 1c. Rare. t. 159. Fl. Dan. t. 797. (T. purpuracae ; Ger. Em. 735. T. alterum ; Matth. Valgr. v. 1. 491.)—Calyx almost twice as long as the corolla. Flores tapering, abrupt. Leaves straight. Flower-flalks swelling upwards.—Native of meadows in Switzerland, Germany, England, and about Conflantimophe, flowering in May and June. Cultivated in the kitchen gardens of the more opulent, the roots being esteemed a delicacy, and known by the name of Saffafae. They resemble Scorzonera hispanica, and have a sweeter delicate flavour, when dressed with cream, but are esteemed chiefly for the sake of variety. This plant having been perhaps more cultivated than fcelent vegetables were fewer in England, has become naturalized in various situations, chiefly of a low or moift description. We have alluded to it above as the true τραγόπογον of the Greeks. The herb is biennial, erect, glaucous, fmooy, four or five feet high. Leaves slightly, or not at all, wavy. Flowers of a violet-purple, with black anthers; they close before noon. Linnaeus, in his Difer- tation on the Sexes of Plants, English ed. 544, relates that he obtained a small plant, by propagating the stigma of T. pratensis with the pollen of the present fpecies. The progeny of the seeds had purple flowers, yellow at the base, evidently of an intermediate nature between the two parents; nor can any thing, as Linnaeus observes, more decidedly vince the generation of plants.

8. T. angustifolius. Narrow-leaved Goat's-beard. "Bel- lardi M.S.S." Wild. n. 8.—"Calyx of eight leaves, longer than the corolla. Leaves ftraight, fmooy."—Found near Nice. Biennial. Like T. cotofolius, but the calyx consists of eight leaves, and the follege is entirely smooth at the base. The ftem is but four inches high. Willdenow. We are not sure whether one of our fpecimens from Dauphiny be referable to this fpecies. It is hardly three inches high; the follege is quite smooth and naked throughout; but the calyx has only fiv leaves. Another from the fame country fens intermediate between it and cotofolius. The fpecies of few genera are lefs satisfactorily defined than thofe of Tragopogon.

9. T. cotofolius. Crecus-leaved Goat's-beard. Linn. Sp. Pl. 1110. Wild. n. 9. Ait. n. 6. Sm. Fl. Grec. Sibth. t. 779, unpublished. (T. cotofolium montanum, flore nigro-purpureo ; Column. Ecphr. v. 1. t. 230.)—Calyx longer than the corolla. Leaves tapering; loosely woolly at the base on the upper fide.—Native of Italy, the south of France, and the ille of Cyprus. Miller is said to have cultivated this fpecies, but we do not remember to have met with it in gardens. The root is tapering and biennial, like all the reft of this fection. The ftem is fcarcly above a foot high, branched, nearly or quite smooth, clothed with numerous, narrow, spreading, drooping, white-ribbed leaves, very remarkable for a quantity of loofe, thagy, cottony wool, about their base on the upper fide, which is sometimes found also on the branches and flower-flalks. Flowers of a violet-purple, with yellow flefts and blackish anthers; their flores more spreading than in T. porrifolius, and their calyx greatly defiexed, twice as long as the corolla, confliting of from five to eight acute leaves. Columna represents five broad ones only ; Dr. Sibthorp found eight, which are narrower. The humble nature of the plant, and its woolly leaves, afford its moft flirting diftincions. The flores are beautifully adorned with ascending fcales, which prevent their escaping, when once lodged in the earth, the agitation of their feathery wings, by the wind, serving only to force them further down, till each wing thrives at its base, and easily breaks off. The fame economy is apparent in other fpecies of this and fimilar genera, but peculiarly admirable in that before us. It is analogous to what has been observed in the firft fpecies of STIPA; see that article.

10. T. villatus. Hairy-Goat's-beard. Linn. Sp. Pl. 1110. Wild. n. 10. Ait. n. 433.—Calyx longer than the corolla. Stem much branched, corymbe, clothed, like the bafes of the ovato-lanceolate leaves, with fhanggy wool. Native of Spain and Siberia; introduced at Kew, in 1794, by Mr. Hunnemann. Root biennial. Herb as tall as T. porrifolius, but the ftem is very much more branched, and more flender, clothed with loofe, fattered, cottony wool, as well as with numerous, fhort, ovato-lanceolate, pointed leaves, thoje about the corymbe upper part of the item measuring from one and a half to two inches in length. Flowers a little drooping, pale yellow, rather smaller than thofe of porrifolius, on cylindrical fluted flalks. Calyx of about nine leaves, nearly half as long again as the corolla. Anthers brownish. Rays of the fcll-drawn rough, very woolly, with long, naked, taper points. This, at leat, is an unquefionably diftinct fpecies.

For Tragopogon virginicum, Linn. Sp. Pl. 1111. (Hysperis pendantis of Willd. Sp. Pl. v. 3. 1615.), as well as the two fpecies of Linnaeus and Willdenow, see TRONISSON.

Other Linnaean fpecies are separated, as we have already faid, into a no lefs diftinct and natural genera, for which we here retain Willdenow's name.


Gen. Ch. G. mmon Calyx limple, of one leaf, ovate, tu- mid at the base, deeply divided into eight equal, lanceolate segments. Cor. compound, imbricated, uniform. Flores numerous, all perfect, of one petal, ligulate, abrupt, with five teeth; their tubes about the length of the calyx. Stem Filaments,
TRAGOPOGON.

Filaments, in each floret, five, capillary, short; anthers united into a cylindrical tube, projecting out of the tube of the floret. *Pill.* German in each floret obovate; style tu-
mid and oblique at the base, with a kind of joint, then thread-shaped, straight, the length of the filaments; stigmas two, revolute. *Peric.?* none, except the permanent closed turbinated calyx, shorter than the feed-down, finally reflexed. *Sched.* tolytic, obovate, oblique, angular, rough, each crowned, at an obtuse angle, with a flalk, various in length, turmid and inflated at the base, bearing the spreading feathery feed-down. *Recept.?* naked, flat, roughish.

Eff. Ch. Receptacle naked. Calyx turbinated, of one leaf, in eight long segments. Seed-down feathery, on an oblique inflated flalk.

1. *A. Dalechampii.* Great-flowered Sheep’s-beard. Willd. n. 1. Ait. n. 1. Sm. Fl. Græc. Sibth. t. 780, unpublished. (Tragopogon Dalechampii; Linn. Sp. Pl. 1110. Hieracium magnum ; Dalech. Hift. 569, bad. H. purpureum, incisus folios, montanum; Bar. Ic. t. 209.)—Calyx finely downy, without bristles. Leaves runcinate, toothed.—Native of Spain, the south of France, Italy, and the Levant. We have seen it, admiring funny hills about Genoa, in the early part of a summer’s day, when its copious large flowers, of a delicate sulphur-colour, purple underneath, make a fine appearance, intermingled with the blue Catanaeche, and other hardy plants, while the great Myrrhobolus libelluloides is seen softly flattering over their blossoms. Miller appears to have cultivated this plant, which is a tolerably hardy perennial in warm dry situations, flowering from June to October, but not often seen in gardens. The *fem* is from two inches to a foot high, purplish at the base, leafy, roughish, as well as the alternate, clasping, runcinate *leaves*, of which the upper ones are obovate, and nearly entire. *Flowers* two inches wide, follicary, on long, very simple, terminal, round, rough, furrowed flalks. Calyx even, covered with peculiarly soft flalks. *Florets* hairy at the back. Stalk of the feed-down tapering, hollow throughout, nearly vertical, about thrice the length of the feed.

2. *A. pereoides.* Prickly-cupped Sheep’s-beard. Willd. n. 2. Ait. n. 2. Sm. Fl. Græc. Sibth. t. 781, unpublished. (Tragopogon pereoides; Linn. Sp. Pl. 1111. Sonchus asper lacinatus creticus; Bauh. Prodr. 60.)—Calyx hifid, with prominent bristles. Leaves divided, toothed; those of the fem oblong, contracted towards the rounded clasping base.—Found on the shores of Montpellier, Italy, and Aifa Minor. Sent to Kew by M. Richard in 1774. Annual, with the habit and flowers of the last, but the *leaves* are very different, at least those of the fem, which, instead of being dilated and deeply jagged, are merely oblong and toothed. The flalk of the feed-down morefeem much shorter, though equally timid at the base. — A. capensis. Cape Sheep’s-beard. Willd. n. 4. (Tragopogon capensis; Jacq. Coll. v. 2. 320. C. Rar. t. 577.)—Calyx hifid, with prominent bristles, and deeply channelled. Leaves runcinate, toothed; the upper ones arrow-shaped at the base, nearly entire. The seeds were received by Jacquin from the Cape of Good Hope, and produced biennial plants, three or four feet high, branched, having much of the appearance of a Sow-thistle, like our second species. But the *leaves* are much lefs dilated at the base, and the calyx is more deeply channelled, having eight timid ribs, or angles. The slender and elongated flalk of the feed-down is very like that species, of which it is possible the present may be but a variety. We know it only from Jacquin’s works.

TRAGOPOGON, in Gardening, contains plants of the hardy, herbaceous, biennial, and perennial kinds, among which the species mostly cultivated are, the purple goat’s-beard, or fafalfe (T. porrifolius); the common yellow goat’s-beard (T. pratenfis); the crocus-leaved goat’s-beard (T. croci-
folius); and the great-flowered goat’s-beard (T. Dalechampii).

The first fort is cultivated in gardens under the name of fafalfe principally for the use of the root parts of the plant and the young shoots. The roots, when boiled or stewed, have a mild sweetish flavour. The flalks are also cut in the spring, when they are four or five inches high, and dressed like alfargan, in which way they eat very tender and well.

Method of Culture.—The first fort is only raised from seed, which should be sown in the spring, in an open situation to remain, either broad-cast and raked in, or in hollow drills eight or nine inches asunder, scattering the seeds thinly, and covering them half an inch deep; and when the plants are come up two or three inches in height, they should be thinned and weeded by hand or the hoe, leaving them eight or ten inches asunder, repeating the weeding as required during the summer, which is all the culture they require, and they will have large roots by the autumn, as September or October, when they may be begun taking up for use; and in November, when the leaves begin to decay, a quantity be preferred in sand for use in time of severe frost, when thoile in the ground cannot be got up.

In the spring, when those remaining in the ground begin to shoot, the shoots, when a few inches high, may be cut for use, which, when quite young and tender, on being boiled, are excellent eating. A few plants should be suffered to run up to flalk every spring, to produce seeds.

The shoots are brought to market in bunches during the autumnal and winter seasons.

The two following forts may also be raised from seed in the same way, and the plants, when a little advanced in growth, be planted out if they are required for variety in any particular part.

The third fort may also be propagated by parting the roots in autumn and spring, and planting them where they are to remain.

The first is cultivated wholly as a culinary plant, but the others afford variety in the borders of pleasure-grounds, &c.
TRAGORCHIS, in Botany, from τράγος, a goat, and Orchis, see that article, has been used by several old authors to designate certain species of that beautiful and curious tribe, whose flowers were thought to have a goat-like scent. Two in particular have thus been called; the Satyrium hircinum of Linnaeus, now Orchis hircina, and his Orchis coriophora.

TRAGORIGINUM, from τράγος, a goat, and ὄρχις, marjoram, is a name applied by the older botanists to several plants, mostly belonging to our present genus ORIGANUM, which may be found in its proper place, or to some aromatic plants allied thereto. The original meaning of the word was founded in the idea of Marjoram being agreeable to goats, and especially of the Cretan Marjoram, or Dittany, being a sovereign remedy for such as were wounded by arrows. Tragyrganum natum, Baffard Goat-marjoram, Dalechamp Hill. 889, has indeed no connexion or affinity with other plants that bear this name, being the Lithospermum Fruticosum, whose leaves only possess a slight resemblance to the ringent plants, without any of their flavour or qualities.

TRAGOSELINUM, from τράγος, a goat, and σέλινος, parley, a name first used by Tabernaemontanus for the Pimpinella Fagrinago of Linnaeus, which some have called Traganum; see that article and Tragus.

TRAGULÉA, among the Romans, a strong kind of javelin, with a barbed head.

TRAGUM, in Ichthyology, the name given by Arilitote, and others of the old Greek writers, to the tragum of Atheneus, Athenaeus, and Oppian. Both names are used to express the fish called by authors the poixinaeux marinus, and by us the fire-fly, or fire-fly.

TRAGURIUM, in Antiquity Geography, a town of Dalmatia, famous for its marble. Pтолем.,

TRAGUS, a river of the Peloponnesus, in Arcadia. Pausanias.

TRAGUS, in Anatomy, an eminence of the external ear. See EAR.

TRAGUS, in Botany, a name which has been variously applied. One ῥυγός, of Dioscorides, book 2. chap. 115, appears to be a kind of meal or flour. Hence perhaps Haller was led to use this name for a genus of griffles, now denominated Lepisorus; see that article. Such an application is like the old derivation of lucus, "a non lucendo" few of the tribe being likely to yield lefs meal. Another τραγος of the above Greek author, book 4. chap. 51, is described by him as a "maritime shrub, of humble growth, without leaves, whose branches are beset with a kind of reddish berries, the size of grains of wheat, pointed, and very alringent." Whether this may be the Ephedra, or any thing else, it is difficult to determine. Valerius Cordus thought it Sedum album, which is a common Greek plant. We might rather indicate S. anglicum, that were found in Greece, the leaves, in both cafes, being taken for herbs. Camerarius gives Salsula Kali for the plant of Dioscorides, annexing an abstract of his description of its form and qualities, the former of which, at least, does not agree with this Salsula; any more than with S. Tragus, so called by Linnaeus, apparently beacuse the name was at hand when he was intent on distinguishing it from S. Kali; see Amoen. Acad. v. 4. 310. We collect these particulars to shew the difficulty of the enquiry, as well as its inutility. Dioscorides is amusing enough, as a botanical riddle-book, because, while some of his descriptions are elaborate and precise, others are just sufficiently vague to afford room for conjecture. Theophrastus, though far more philosophical, is in but a few instances clearly intelligible. The greater number of his plants are merely named, as being supposed well-known to his readers, and therefore he scarcely affords matter to found any conjectures upon.

TRAHINA, in Geography, a town of Sicily, in the valley of Demona; 28 miles N.W. of Catania. N. lat. 37° 40'. E. long. 14° 40'.

TRAHONA, a town of Italy, in the Valteline, on a small river which runs into the Adda, 2 miles N. of Morbegno.

TRÁJAN, M. Ulpius Trajanus, in Biography, a Roman emperor, the son of a distinguished commander under Veprian in the Jewish wars, was born at Italica in the Spanish province of Barcina, entered betimes into the army, and accompanied his father in several military expeditions; acquiring the hardiness, submitting to the discipline, and uniformly practicing the duties of a soldier. In the career of public honour, he was first made prætor A.D. 86, consul A.D. 91, and raised by Nerva to the rank of Caesar A.D. 97, being at this time in the 42d or 43d year of his age, according to the statements of different writers, and poising a majestic figure, manly features, and dignified aspect. Upon the death of Nerva in the following year, Trajan succeeded, without opposition, to the imperial throne. He was at this time at Cologne, and remained for some time in Germany. In 99 he set out for Rome, and entered the city on foot preceded by the lieutors as an ordinary magnificer, and followed by a few soldiers exhibiting the demeanour of citizens. Affable in his manners, bountiful in his largesse to the Roman people, and anxious to procure a supply of corn by allowing free importation from the colonies, Trajan acquired and maintained a very great degree of popularity. He likewise very much contributed to the tranquillity and good order of the city, by removing to exile the infamous tribe of delators, who had been encouraged by the tyranny of Domitian, and not sufficiently repressed by the lenity of Nerva, and by infusing an edict with some penalties against all false accusers. He also reduced the tax of the twentieth upon collateral successions, imposed by Augustus, and formed a fund for the exercise of liberality by his own economy and frugality. He encouraged merit, and advanced to posts of public service those who had distinguished themselves in the public wars, in the public service, and in the public war, and in the public service, and in the public service.
dered important and interesting, by the appointment of Pliny, A.D. 103, as governor of Pontus and Bithynia, and by the correspondence to which this appointment gave occasion, and which pourtrays in the most pleasing characters the enlightened and benignant spirit by which he was actuated. (See Christian Religion and Pliny.) In the following year the war with Decebalus was renewed, and on this occasion Trajan constructed a bridge over the Danube, which was long admired as one of the most considerable relics of antiquity. When Decebalus had dispatched himself after the loss of his capital, Dacia was constituted a Roman province, and colonized from other parts of the empire. (See Dacia.) Upon his return to Rome, he employed himself in carrying on some works of public magnificence and utility: but successes in his military expeditions unfortunately confirmed the innate propensity of war, which seems to have been his most consumable foible; and accordingly the subsequent period of his reign was too ardent devoted to the gratification of his ambition, in extending the boundaries of the Roman empire. In the year 187, he reduced Armenia into a Roman province; the whole of Mesopotamia was also subdued; Arabia Petraea was likewise made a Roman province; and all the barbarous tribes situated north of Armenia, between the Euxine and Caspian seas, were reduced to submission. After the lapse of some years, of which no regular account remains, we find Trajan, A.D. 114, dedicating the magnificent forum, which he had constructed at Rome, and erecting the column on which his exploits are sculptured (see Column and Forum); and also renewing the war with the Parthians. In 115 he crossed the Tigris on a bridge of boats, and subdued Adiabene and the whole of Assyria; and having captured Ctesiphon and Susa, he defended the Tigris with his fleet, and had the honour of being the first and last Roman general who navigated the Indian ocean, ravaging the coast of Arabia Felix. He even indulged the ambition of visiting India. On his return he laid siege to Atra, the capital of an Arabian tribe, which he was obliged to raise and to withdraw to Syria. In the year 117 he was attacked with a paralytic disorder, attended with dropsy, and he therefore hastened his return to Italy. At Selinus in Cilicia he had another attack, which proved fatal. In his last moments, the empress Plotina secured the adoption of Adrian for his successor. Trajan died in the sixty-fourth year of his age, after a reign of nineteen years and a half, and his remains were deposited under his own column. This emperor's virtues were shamed by weakneſs and vices. His passion for war had been already mentioned; he was also addicted to sensual indulgences, of which intemperance in drinking was the least scandalous. Notwithstanding the blemishes of his character, his memory was long held in veneration, insomuch that 250 years after his death, the senators, in their acclamations on the choice of a new emperor, vociferated the wish that he might be "more fortunate than Augustus, and better than Trajan." Anc. Un. Hift. Crevier's Rom. Emp.

Trajan Column, a famous historical column, erected in Rome, in honour of the emperor Trajan. See Column, Colossal.

Trajan, in Geography, a town of European Turkey, in Moldavia, on the Pruth; 16 miles N. of Galatz.

Traiana, or Trea, in Ancient Geography, a town of Italy, in the interior of Picenum. Ptol. and Itin. Anton.

Trajanopolis, in Geography, a town of European Turkey, in the province of Romania, on the Mariza. This is an ancient town, and took its name from the emperor Trajan, who repaired and adorned it; it afterwards became very considerable, and now, though much reduced from its ancient splendour, is still the see of a Greek archbishop; 40 miles S. of Adrianople.

Trajanopolis, in Ancient Geography, a town in the interior of Thrace, upon the banks of the river Hebrus. In the Itin. Anton. this town is placed between Brizezes and Cypfsela. Allo, a town of Mythis, near the sea, between Antandrus and Adramyttium. Allo, a town of Apha, in Cilicia Trachea, where the emperor Trajan died: the name with Solumine.

Trajanopolis, or Transpolis, a town of Apha, in Phrygia Pacatiana.

Trajanus Portus, a port of Italy, on the coast of Etruria, at the mouth of the Tiber; constructed by the emperor Claudius, and repaired by Trajan, who rendered it more secure and commodious, and gave it his name.

Trajectory of a comet, is its path or orbit, or the line it describes in its motion.

This, Inelius, in his Cometographia, will have to be very nearly a right line; but Dr. Halley concludes it to be a very eccentric ellipsis.

Sir Isaac Newton, in prop. xli. of his third book, shews how to determine the trajectory of a comet from three observations; and, in his last proposition, how to correct a trajectory graphically described. See Comet.

This term is often used, in general, for the path of any body moving either in a void, or in a medium that refits its motion; or even for any curve passing through a given number of points. Thus Newton, Princip. lib. i. prop. 22. propodes to describe a trajectory that shall pass through five given points.

Trajectum, in Ancient Geography, a town of the Batavi upon the Rhine. Trajectum is thought to be one of the fifty mansions erected by Drusus in this country, to afford security to the course of its rivers. This place sustained a variety of vicissitudes, till at length it was established by the Romans. It had the name of Trajectum Ulpii, in honour of Ulpius Trajan. In its environs are found many ancient remains. See Utrecht.

Trajectus, a place in the ile of Albion, upon the route from Calleva to Icē, between Abone and Aquae Solis. Anton. Itin. Antiquaries are generally of opinion, that Trajectus should have been placed before Abone, and that it was situated at Oldbury, where, as they suppose, was a ferry over the Severn; but Mr. Horley imagines that Trajectus was situated at the passage of the Avon, near Henham, 9 miles from Bath.

Trajetto, in Geography, a town of Naples, in the near the mouth of the Garigliano, the see of a bishop, built on the ruins of the ancient Minturnae; 6 miles S.W. of Sezza.

Traguera, a town of Spain, in Valencia; 12 miles N.W. of Penifcola.

Trail-Boards, in Ship-Building, a term for the carved work between the cheeks of the head, at the heel of the figure.

Trailing Arbutus, in Gardening, the common name of a curious ornamental plant. See Epigaea.

Train, the attendance of a great person, or the trail of a gown, or robe of flate.

In Falconry, it denotes the tail of a hawk.

Train is likewise used for the number of beats which a watch makes in an hour, or any other certain time. See Watch-word.

Train is also used for a line of gunpowder laid to give fire to a quantity thereof, in order to do execution, by blowing up earth, works, buildings, &c.

Train or Train of Artillery. See Artillery.
Train-Bands, or Trained-Bands, a name given to the militia of England, particularly to those of the city of London.

Train-Oil, the oil procured from the blubber of whales, by boiling. See Whale and Whale-FISHERY.

Train-Roads, a flight kind of rail-ways for small wagons, used in mines.

Train-Scents, in the Manager, a method of trying the speed and goodness of the horses assigned to the sport of hunting, io denominated because the scent which the hounds hunted, proceeded from some animal which had previously been trained along the fields and over hedges and ditches, according to the pleasure of the person who trained or dragged it after him. The rival horses were to follow the hounds which hunted this scent, and give proofs of their speed and merit, in competition with one another. Of all chances this was reckoned the twiftest and most trying, because the scent lies the bottom; so that the hounds run all the time at the utmost stretch, and the horfes must have been exerted to their utmost powers to keep pace with them.

Behind, in this manner of hunting, the sport was always ready when a fox or hare might not easily be found; and this mode of matching and running hunters, in order to try their speed against one another, while they followed the dogs, was thought to be more pleasing both to the riders and horses, than to make them run simply against one another, or against time, as the present practice is. When neither the hunting of the hare, nor the running of the trains, could not decide which horse is the best, recourse was had to another kind of chase, called by horfemen the wild-goofe chase or chace. See Chase.

Train, in Geography, a river of France, which runs into the Dyle, about 9 miles S. of Lovain.—Also, a town of Bavaria, on the Ambs; 5 miles S. of Abenberg.

TRAINA, a town of Sicily, in the valley of Demona, on a river of the same name; 56 miles S.E. of Cefalu.

Trained Trees, in Gardening, such young fruit-trees as are designed for walls and espaliers, being trained in the nursery to the intended form, by planting them against any kind of walls, pales, reed-hedges, or other close fences; when a year old from the grafting or budding, training them in the manner of wall or espalier trees, for two, three, or more years, till they obtain a good spread of branches, and are arrived to a fruitful late, in order that those who are in haste to have their walls or espaliers covered at once with bearing trees, may have it accomplished in one season. The trees thus trained in the nursery, &c. on being planted out in autumn or spring to the places intended, cover the wall or espalier in some manner at once, and often bear fruit the ensuing summer, when the feason proves favourable for the purpose.

In the public nurseries, large quantities of these kinds of trees are always kept ready trained for ale, particularly peaches, nectarines, and apricots for walls; in many places also, cherries and plums, &c. likewise apples, pears, and other fruit-trees, for espaliers; and are proper to furnish the walls and espaliers of new gardens, and occasionally those of old ones, to bear fruit till younger trees, trained untrained, become fruitful, or for supplying the places of old trees that fail, or bear bad fruit. In all cases of this sort, this mode of planting may often be adopted with great propriety and benefit, and besides much time and trouble be saved by it, in waiting for the trees to become in a bearing late, as well as the expense which is constantly incurred in carrying on the operations and procures of preparing young fruit-trees. The difference in the prices of trained trees over those of untrained ones is a mere trifle, and of no consideration in such undertakings. Therefore, in all nurseries some of the best kinds of these trained fruit-trees, both for walls and espaliers, may be kept ready for these purposes with great utility and advantage.

When, of course, it is intended to raise trained fruit-trees for walls and espaliers, a quantity of the best young plants of the respective sorts, dwarfs and half-standard, of one year old, with the first shoots from the budding and grafting entire, should be planted out in autumn against some kind of fence in a free open situation, not less than four or five feet high, placing them from five or six to eight or ten feet distant, to remain for training. These in the spring following, just as they begin to make an effort for shooting, should be headed down, with a clean sloping cut upward, to within four, five, or six eyes or buds of their origin, or place of infection in the stock, especially those intended for dwarfs, and the half-standard, if worked on tall stocks; which prevents their running up too high with a single naked stem, and causes them to throw out lateral shoots from the lower part to fill the wall or espalier regularly with branches quite from the bottom upward; as they soon after push forth strong shoots from all the remaining lower buds, sufficient to give the tree its first proper formation as a wall-tree, &c.; which shoots, when advanced in length in summer, should be trained along to the fence equally to the right and left, in a somewhat slanting or inclined position at full length till next spring, when these shoots may also be cut down to the length of six or eight inches, to force out a further supply of more branches near the bottom, as it is proper that they should be well furnished with branches below, in order to cover the wall, &c. at the bottom part, that none of it may be left or left in an uncovered state. The summer shoots should be shortened in this manner; more or less the two or three first springs, as may be necessary, in order to obtain a proper spread of lower branches to give the tree its intended form; though this work of cutting in short to obtain laterals, may also be performed occasionally in summer, in May or early in June, on the strong young shoots of the year, cutting or pinching them down to a few eyes; but the first is the best mode. This last mode, by forcing out lateral shoots the same year, often saves time.

As the supply of branches thus obtained arrive at proper lengths, in the summer they should be all trained in along close to the wall, and if any fore-right or back shoots come out, they should be rubbed off close, leaving all the well-placed side and terminal shoots in every part, and letting the whole, or as many as possible, be trained in during this season, to have a plenty to choose from in the general pruning seasons of winter and spring, laying them in close to the wall, &c. equally to the right and left, on each side of the tree, in a spreading somewhat horizontal or fan-like manner, no where crossing one another but at parallel distances, and mostly all at full length during the summer's growth, to remain till the general winter or spring pruning.

In the winter pruning, where more wood was trained up in summer than appears necessary, or that can be trained in with due regularity, it should be retrenched, as well as any remaining fore-right or back shoots and other irregular growths omitted in the summer, be now all pruned out, cutting them quite close to their origin. The whole should then be close-nailed to the wall, in somewhat the same manner, removing in the first place all the irregular side and other shoots of the different branches before they are laid in and nailed. See PRUNING.

Having thus procured proper heads, they should afterwards be pruned or cut in according to the method peculiar to
to each respective fort, as directed under the culture, some requiring the branches to be shortened annually, others to be mostly trained at full length. See Dwarf and Espalier Trees, Pruning, &c.

The training of espalier trees is effected exactly in the same manner, only these may be trained as they stand in the nursery lines, in the open quarters or borders, &c., by ranging some stout stakes in the ground along one side of each tree, not in a continued straight line immediately the way of the row, but those of each tree ranged separate and obliquely, somewhat crosways the row as it were, that the branches of the different trees may range beside one another, and thereby have more room to extend the branches both ways, than the common distance in the nursery lines would admit, if ranged directly the way of the row.

It may be noticed, that occasionally it may happen that some particular trained trees of both the wall and espalier kinds may assume in the course of their training a state of extremely vigorous and luxuriant shootting and growth either in the whole of them, or in some particular parts, by which very strong rampant, rude shoots that have a peculiar unfruitful-like nature and appearance are sent forth, which in all such cases and circumstances should be ordered and directed in a particular manner, according to their nature and situation, until they have in a great measure exhausted their too great abundance or redundance of sap which caused their excessive luxuriancy, and then begin to take on a more moderate state of shootting and growth. In consequence of which, therefore, wherever there appears to prevail a general luxuriant and excess of growth in the whole trees, or parts of them, while under the course of training, or afterwards, it will be advisable to use proper and necessary caution in the work of pruning, employing the knife in rather a moderate manner in the way of thinning out and shortening the branches, and in some degree humouring, as it were, the trees in their natural tendency of shootting and growth, by leaving the young shoots and branches thicker and closer together than what is the common rule in all such cases, the whole being left at their full lengths particularly during their summer's growth; and to all those which are usually shortened in their winter pruning, as in the peach, nectarine, and other similar sorts of trees, they should be shortened much less in proportion than the other kinds; but those of the apple, pear, plum, cherry, and others of the same sorts, should always be continued at their whole length; that, on the whole, by thus dividing the sap-juice among a greater number, as well as larger extent of branches, that luxuriancy may be checked which would take place in the case of a smaller number and less extent of growth. As, in general, the more wood can be cut out of a vigorous shootting tree, and the more the shoots are shortened, practices which are erroneously too frequently had recourse to, the more vigorously it will continue to shoot, without ever becoming properly fruitful; and if severe cutting-in be repeatedly practised and continued, the tree will often exhaust itself so greatly by its luxuriant shootting, that it suddenly becomes in a weak, imperfect, and decayed state of growth. But, on the contrary, if the natural inclination of the very vigorous-shootting young trees be somewhat consulted and indulged, in the first instance, by training in as many branches as can be conveniently had for the purpose, and those which require shortening, be cut in moderately only, or some which are very luxuriant hardly at all, and these methods continued to be practised for two or three years with proper dierenion, the trees will be gradually reduced to a moderate state of growth, and good condition of bearing, after which they may be managed and directed in the common way which is proper for each of the different sorts.

And, on the other hand, such trees as are only vigorous in particular shootings, may, in some cases, have such shoots radically retrenched, but in others referred; and if a very vigorous shoot runs considerably stronger than all the rest, and seems to support its vigour at the expense of the others in its vicinity, it should be retrenched to its very origin as early in the summer as it is perceived; in other cases, if a luxuriant shoot arises in any vacant space, especially towards the bottom part, where a supply of more wood is wanted, it may be retained, and pinched off or topped down in a few weeks in the late spring or beginning summer months, when it will send out several lateral shoots below, the fame seafon, and instead of one rude luxuriant shoot, there will probably be four, five, or more of a moderate state to fill the vacancy in a more effectual manner, and which will much sooner attain the state of fruitfulness.

The trees having been thus in training in the nurseries for the space of three, four, or five years, they will have obtained a handsome spread of fruitful branches famed in the regular proper and necessary forms for the different purposes which are intended, so as that when planted out, they may at once cover a large space, and become quickly fruitful and productive. The particular method of culture which is proper for each of the sorts, is more fully given in speaking of them individually under their several heads.

But it may be remarked that, in general, unless good trained trees can be readily obtained, of from three or four to five or six years old, of a clean free growth, it will be better to plant entire young untrained trees of one or two years old, immediately from the nursery, putting them at once where they are to remain, managing them afterwards as the trained trees, to give them the proper form of head.

Some, in order to have as great a chance as possible, plant young untrained trees to remain, and trained trees of a bearing state, dwarfs and half-standards between, to cover the wall more effectually at once, and furnish a supply of fruit, until the young ones are trained and arrive at the bearing state; then, according as the trees of both sorts advance in that state of growth, those which appear the most promising are retained, and the others are gradually cut away, leaving the more thriving trees to occupy the wall wholly at last.

In most of the public nurseries, they raise trained trees for sale, which occupy all their clofe fences of walls, pales, &c. where they may be procured of almost any size, differing in price from three to five or ten shillings or more per tree, according to the sorts, age, and goodness of growth.

TRAINEL, in Geography, a town of France, in the department of the Aube; 6 miles S. of Nogent fur Seine.

TRAINING, in Planting and Gardening, the practice of regulating the forms and growth of forell and fruit trees, by the proper lopping and retrenching of their side or other branches in the first kind, and by the cutting-in and distribution of their shoots and branches in the latter. What is principally necessary in the management of the former of these sorts of trees, in this respect, has been already pointed out under the heads to which it properly belongs. See Pruning and Timber.

And in regard to the latter, or garden kinds of trees, it has been remarked, that when by fixtures it is properly a practice much connected with that of pruning, and which is employed, either for the purpose of protecting exotics of the tender fruit-tree kinds from the wind, for improving their climate by spreading them in a regular manner upon a wall or fence, or for supporting climbing or trailing
trailing plants. In the first case, it is performed in a great
variety of modes and manners, according to the nature and
kind of support which is made use of for the purpose. In
the second intention too, it is done differently, as the cir-
cumstances may be, and mostly against walls, as in the fan
and horizontal modes; the former of which is said to be
calculated for fonnell covering the walls, and to be likewise
the most proper for such kinds of trees as do not abound in
superfluous wood, as the cherry, peach, and apricot.
The latter mode, however, is said to fill the walls more com-
pletely, though longer in accomplishing the businets; and
to be the best fitted for such trees as run much to wood, as
is the cafe with many apple and pear trees. See thefe
different sorts of trees.

In the work of training for the support of climbing
plants, nature fhould, it is supposetl, be imitated as nearly as
possible. That with the kinds which twine round other
trees or supports, or that fall themselves to walls, nothing
more is thought necessary, than to put them on similar ob-
jects which are within their reach; but that with others,
which support themselves by claspers or tendrils, it is re-
quite to fallen them by art when these claspers fail; which,
in nature, is commonly the second year; when the whole
turning frab or climber falls down, or hangs by its latt-
formed tendrils in fuch a manner, as that its fhoots are
bent, twifled, or inclined in almost every direction. This
is the cafe with many forts of tree plants, such as vines,
apfion-flowers, and others, and strongly fuggets the ad-
vantage of training fuch kinds in a twifled or ferpentine
manner; as nothing can be more unnatural than to train
them in an upright mode, as is too commonly done with the
firit of these fhoots, where set againft the back wall of hot-
houses, &c. In training them along a treill, under the
floping glafs of fuch fhoots, they are faid to be in a more
natural situation, and are more likely to fend out fhoots, or
to break, as it is often termet, at every joint; but till ex-
perience has, it is thought, proved the falt advantage of
training in a ferpentine or twining direction in every sit-
uation.
In a great many houfes of the above fort in all
parts of the country, nearly two-thirds of the crops which
might annually be produced, are, it is fuppofed, loft for want
of attention to this circumstance. And, that as the practice
is natural, uniformly fuccefsful, fo far as it has been yet
tried, and without injury, it ought to be more generally had
recourse to in the businets.

Great udes and benefits are capable of being taken of
the fame principle in the training of other forts of trees; as
whenver the fap is contrained by twifling a fhoot or
branch, it is fure at fuch places as are most bent, or which
have most of the angle of the curve, to fend out a fhoot,
as has been well noticed, illustrated, and taken advantage of
by both ancient and modern writers on horticulture. See
Hitt's and Forthly's Treaties on Fruit-Trees, &c.

In the training of fruit-trees, few who have been engaged in
the work have, it is fuppofed, fully uniforderd or fufficiently
avoided themselves of the advantages which might be taken
of this general law in vegetable economy, that the extreme
branches bent downward, or the extreme roots turned up-
ward and exfosed to the air, throw the tree more or les into
a fruiting state. It has lately, however, been done by
turning the branche of fuch trees over the tops of walls,
or in other modes, with allfounding effects in the production
of fruit. The great effects of this fort of training are evi-
dent too in many other infances, where beds, twills, and
downward directions are given to fhoots and branches by
different circumstances in the obiects to which they are
trained. The powerful and excellent effects of cutting the
roots of trees either at some distance from or near to the
chief ftem, as well as thoef of cutting the item itself, in
order to throw them into a fruiting condition, have, it is
faid, been fully recorded by former writers on gardening,
and been recently prafticed with complete success. See
Espallier Trees, Pruning, Trained Trees, and Wall-

TRAINING, or TRACING, in Mineralogy, a term used
by our miners to exprfes the tracing up of the mineral ap-
pearances on the surface of the earth to their head or ori-
ginal place, and there finding a mine of the metal they
contain: or, tracing or tracing a lode, denotes the fame
with backing of it; that is, laying open the bryle, and
discovering the back of the lode, by many pits for feve-
ral fathom in length, ealt and weft. The bryle of a
lode, is that mineralized fubfiance which lies loofely upon
the top of it under the loose mould and rubbish of the earth.
The principle on which this practice depends, is the
change wrought in the face of the earth by the deluge, of
the effects of which thofe remains are a very great proof.
The superficial or upper part of veins, or lodes of ore, is
always the poorer, the richer ores lying deeper down, the
poor ones only serving to lead the way. Thofe poor ores,
or flones impregnated with the metalline matter of the mine,
and cailed by our workmen fhoad-stones, were, probably,
at the creation of the earth, brought regularly up to the
surface, and threw the place of the metals below. But at
the time of the covering of the earth by the waters of the
deluge, they were, with the reft of the surface, washed off,
and carried with the defcent of the water down into the
plains, or into the beds of rivers, and there carried many
miles down the fream. This being an allowed truth, the
art of training a mine is easy; for though this carrying of
the fhoad-stones and poor ore was done fo many ages ago,
yet all the way that fome pieces were carried on, others
would be depofited by the way, and the heaviest and richest
falling firft, the lightest would always be carried farthest,
and there would be always left a fream of the matter all
the way from the place where it was firft produced, that
is, where the mine now is: for the breaking of the surface
of the earth at this great catafrophe was not fo deep as to
reach that, and this fream or train of matter will be found
richer and richer as it approaches the mine, and finally will
flop at the place where it is.

Where there is fuppofed to be a mine of any metal, the
hills and country abut all are diligently fearched; the situ-
ations and defcent of the lands, and the earth, flones, and other
folid bodies, are examined, particularly the colour and na-
ture of the various forts of earths and flones which are
found on the hills where the mine is fuppoted to be, that
they may be readily known again if any of them are found
in the neighbouring valleys. The flones which denote the
lodes, and are called fhoad-stones, are found two, three,
four, or even five miles from the hills where they originally
lay; but if the fame fort of flones are remembered on the
hills, the train is to be made out. After any great land-
flood, in which it is fuppofed there are usually fome new
crets made in the banks of the rivers, there are carefully ex-
amined, to fee whether any metalline flones may be found
in their fides and bottoms, all being then fcoated, that the
smallest fhoad-stone may ufually be fett. If no flones of
this fort are found, it is fuppofed the mine is of lfe, in order to far-
ther rearches, to examine whether any pieces of earth, of a
different colour and nature from that of the reft of the bank,
be found; for thefe being, if any fuch are found, washed also from the neighbouring hills, afford a great di-
rection which fide of the hill to search into.
If no flode-stone or grew of a different nature from the reef be found in these frets or newly worn banks, the miners leave the place for the present. For though the bed of the river afford many metallic stones, they never regard them, the continual change of place they receive from the current of the water rendering them only tokens that there is metal somewhere in the country; but they confound and perplex rather than instruct in the search after the places where it is.

If there be found indeed stones of the flode-kind, full of protuberances, or having sharp angles, as if newly broken, it may be worth while to see whether they are not washed out of some part of the neighbouring banks by the late floods; as this sort of appearance is a token of their having been newly taken into the bed of the river. But if they are rounded and smooth, it may be concluded they have been long subject to the action of the water, and brought, perhaps, many miles from the places where they were originally lodged in the earth, and where only they could have been of any use to the tracers of the mine.

When the frets in the sides of rivers have been traced in vain, the searcher after a mine goes up to the sides of the hills most suspected to have mines in them, and there seeks for a convenience of bringing a little stream of water to run down. When this is found, he cuts a trench about two feet over, and as deep as the shelf. The water is turned into this cut, and after two or three days running in it, all the silth will be washed away, and the loose part of the earth cleared off; and if any flode-stones are lodged within the whole course of this cut, they will be found. If any such are found, it is an unquestionable proof that there is ore in the higher parts of the hill; this encourages the work, and there is always found a mine, or at least a squat, which will, without much danger, repay the expense and trouble. The squats are flat parcels of the ore, lying in different and different places of the hills, and not communicating with one another.

Sometimes a great deal of this labour is saved, and the flode-stones are found on the surface of the ground, either turned up by the plough, or thrown up in small quantities in mole-hills, or raised by some other accident, for they are seldom found naturally lying on the very surface of the earth; for the putrid remains of vegetable and animal substances, and other adventitious matter, has raised the surface of the earth in all places, since the time of the flood, and made indeed a sort of new surface. These stones were certainly laid bare on the surface of the ground, at the time of their being carried down from the mines; but this adventitious matter has buried them in this long tract of time, and they are generally found under about a foot of a sort of vegetable mould. If, by any of these searches, a fossil is found, the miners have nothing to do but to follow it to its head, and there make the opening; but if no such direction can be had, nor any fossil found, and there is yet suspicion that there is a mine in the hill, the method is to make an effay-hatch, as it is called: this is sunk near the foot or bottom of the hill, and is an opening of about six feet long, and four feet broad, made in search of a vein as deep as the shelf; this is a caution that must be always carefully observed, for if they are made less deep than this, they may miss of the vein, though there is one. And the shalling thus deep is always attended with certainty, for if no fossil is found on this, it may be concluded there is none there; except that sometimes it is found that the flode has been washed clean away, within two or three feet from the land; and then the lode or vein is two feet farther or thereabouts up in the hill. If any flode is found in the

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each tide, being the lefser or concomitant veins. Five in the
same manner sometimes lie in this order, the grand lode in
the middle and two on each side; but the more common
method is three, a large one, and two smaller.
Every lode has a peculiar coloured earth or green about it,
which is found aloft with the shod, and this always in a
greater quantity the nearer the shod lies to the lode, and
becomes lessened by degrees to the distance of about a
quarter of a mile, farther than which that peculiar green is
never found in any quantity with the shod; so that this is
a proof that the lode or vein is near, when it is found in
any quantity.
A valley may chance to lie at the foot of three several
hills, in such a manner as to contain three several greets, or
that earth which was moved with the shod in the concussion
of the strata at the deluge, with as many different shods or
trains of shod-roles in the midst of each: in this case it will
be very necessary to know the caln of the country, and of
each hill in respect to its green, for the purer training of
them one after another as they lie in order: according to the
foregoing rules of eflay-hatching, the uppermost in this case
always directs which hill to begin with first.
It sometimes happens, that after having trained the shod
found in a valley up to the upper parts of a hill, there is only
a fquit, or boney, found instead of a right vein of ore; for
these detached parcels of ore have their shods as well as the
right veins. These are usually about two or three fathoms
long, and a fathom broad, few of them are larger, most large,
and they never communicate with any other lode or vein, nor
ever send forth any of their own. The extremities of these
beds of ore terminate without sending out any frings, not
lying within walls as the lodes; but though they are in the
shelv or fad ground, not moved by the flood, their surface
is equal every where: with that of the imaginary fheely one,
and they go down five or six fathoms deep, and there termi-
nate at once. The ore contained in these is rich, and they
are always wrought out to the conderable advantage of the
owners.
These are the general rules of tracing mines, and though
somewhat tedious and expensive, they are certain, and never
subject to the error and disappointment the other shorter
ways, as they are called, are liable to. These short ways are by
the virgula divinatoria, or the hazel-wood, whose bending in cer-
tain places without any external visible force, is to point out
where the place the vein of ore lies; the waters thought
to effuse from the particular lodes are also used by fome as a short
means of finding the veins; other of these ways aro also by
mineral streams and effluvins, by the barrenefs of the foil,
and the pifting of nofturnal lights on the fuppofed or-
fees of mines. But these methods are too exaevant or too
uncertain to be used in cafes of fo much conféquence.
Another way of discovering lodes, is by working drifts
acros the country, as it is called, that is, from north and
forth, and vice verfa.
When the mine is found by the more certain rules of
tracing, the digging of it is a matter of lefs difficulty. Phil.
Cornub. book iii. cap. 1.
Trains of Cattle, in Agriculture, the practice of taming
and breaking in oxen and other neck cattle for the purpofe of
team-labour. It is performed in many different ways in
different districts and places; but principally by boys gradu-
ally accoufmifying them to be led by means of a halter or
ropne, and then ufing them to travel in other forts of teams after
the yoke or halter has been put on and rendered familiar to
them; when afterwards they may be wrought in the plough-
teams with the old laburing oxen, being placed between
them both before and behind, and with such as are not too
free workers. See TEAM, Yoke, and YORK.
TRAISENDORF, in Geography, a town of Germany,
in the principality of Cumbach; 5 miles N.E. of
Bayreuth.
TRAIT, Fr. Traiti, is the name of an ancient musical
character, called likewise in old Latin treatises, plica;
which fee.
TRAIT, or Tedia, in Geography, a town of Romania, on
the Mariza; 12 miles S.W. of Filippopolis.
TRAITOR. See Traitor.
Traitor's Cove, in Geography, a harbour on the west
coast of the island of Revilla Gigedo, in the North Pacific
ocean; so called by captain Vancouver, from the circum-
fance of being attacked, and two of his men wounded,
by the natives of this place. N. lat. 55° 42'. E. long.
228° 31'.
Traitor's Head, the north-east point of Erromango,
one of the New Hebrides, so called by captain Cook in 1774,
from the treacherous conduct of its inhabitants. S. lat.
18° 43'. E. long. 106° 28'.
Traitor's Islands, a cluster of small islands, in a bay of
the Pacific ocean, on the coast of New Guinea. S. lat.
1° 12'. E. long. 132°.
Traitor's Island, an island in the Pacific ocean, di-
covered by Le Maire and Schouten in 1616, and so called
from an attempt made by the natives to seize the vessel. M.
Peroufe discovered this island to be divided into two parts,
by a channel about 150 toises wide. It belongs to the
Friendly islands, and is called by the natives Neota-boots-
boo; 16 miles from mount Cocos. N. lat. 15° 55'.
W. long. 173° 48'.
Traitor's Island. See Keppel's Island.
TRAITTE. See Foreign Traitee.
TRALEE, in Geography, a pott-town in the county of
Kerry, Ireland, pleasantly situated at the bottom of Tralce
bay, on the banks of the river Lee. It is the shire and affize
town of the county; was incorporated in 1612 by James I.;
and sends one member to the imperial parliament. There
were formerly four strong castles erected in this town, of
which only one remains, which was the chief residence of the
Defmond family, in which they exercised the feign jurifdiction
during the continuance of the Pale nation. Tralce bay is fhal-
low and unsafe, and therefore not much frequented. Near
the town is a chalybeate spring, which is drunk medicinally
with success. Tralce is 1448 miles S.W. by W. from
Dublin, and 48 S.W. from Limerick.
TRALLEBOE, a sea-port town of Sweden, in the
province of Skone, near the Baltic; 19 miles S. of Lund.
N. lat. 57° 20'. E. long. 13° 54'.
TRALLIES, BALTHasar-LEWIS, in Biography, an
eminent physician, was born at Breilau in 1708, and
having studied medicine at Hall under Frederic Hoffman,
settleed in his native city, where he gained great reputation.
His works were numerous and valuable, and caused him to be
admitted into the Imperial Academy at Vienna, and the
Royal Society of Berlin. But his most celebrated work was
that on opium, entitled "Uges Opii fablbris et novitius
in Morborum Medica, solides et certis principis superfruc-
tus," 1757-1762, 2 vols. 4to. He also published a treatise
against the materialism of La Mettric. He declined, in
1767, accepting the offer of Dril physician at Warsaw to
Standehus, king of Poland, partly on account of his advanced
age, and principally from his attachment to the reformed
religion. Halier, Eloy.
TRALLIA, called also Troaldida, in Ancient Geo-
ography, a country of Illyria.
TRALLIANA, in Botany, was so named by Loureiro, from whom alone we have any knowledge of this genus, in memory of Alexander Trallianus, a celebrated physician and naturalist, whose works are said by De Theis to have been published at Paris in 1548, and reprinted by Haller in 1748. He wrote a letter on insectum worms, which is mentioned in Dryander's Bibl. Banks. v. 2. 356; but we find no traces of his botanical information. Loureir. Cochinch. 157.—Clafs and order, Pentamnia Monogynia. Nat. Ord. Menifjirma. Julf?

Gen. Ch. Cal. Perianth inferior, of five short, rounded, permanent leaves. Cor. Petals five, oblong, spreading, reflexed, longer than the calyx. Nectary large, erect, with ten notches. Stam. Filaments five, short, inserted into the receptacle; anthers roundish, of two cells. Pet. German superior, roundish; stipe the length of the stamina; stigma (simple?) Peric. Berry roundish, of two cells, with two seeds, which are angular on the inside, rounded externally.

E. Ch. Petals five, oblong, reflected. Nectary with ten notches. Calyx inferior, of five leaves. Berry of two cells, with two seeds.

1. T.ficandus. Cay râc of the Cochinchinèse.—Found running up all kinds of trees in Cochinchina. Stems numerous, shrubby, long, climbing, without thorns or prickles; their branches copious, jointed. Leaves alternate, roundish-heart-shaped, pointed, crenate, smooth. Clusters lateral, forked, each on a long commonstalk. Flowers of a whitish green.

TRALLIANUS, in Biography. See Alexander TRALLIAN.

TRALLICON, in Ancient Geography, a town of Afa Minor, in the vicinity of Caria, watered by the river Harpalus.

TRALIS, or Tralles, a town of Afa Minor, in the interior of Lydia, which, according to Strabo, was rich and populous, and strongly fortified by nature. According to Plutarch, here was a temple of Victory. The town had been denominated Antha, Eutania, Seleucia, and Antiochia.

TRALOS-MONTES, in Geography. See TRASOS-MONTES.

TRAM, in the Silk Trade. See SILK.

TRAM—Road, the name with RAIL—Road; which fee.

TRAMACASTREL, in Geography, a town of Spain, in Aragon; 12 miles S.S.E. of Albarazin.

TRAMAND, a town of Brazil, on a river of the same name, which runs into the Atlantic, S. lat. 27° 15'.

TRAMARICUM, in Ancient Geography, a place of Africa Propria, upon the route from Carthage to Alexandria, between Scina and Aubboorn, Ant. Itin.

TRAMAYE, in Geography, a town of France, in the department of the Saone and Loire; 9 miles W. of Macon.

TRAMAZA, a town of Sardinia; 8 miles from Oristagni.

TRAMBLING of Tin-Ore, among Miners, is the washing of it very clean: which is done with a shovel, and in a frame of boards. See T'ix.

TRAMIN, in Geography, a town of the county of Tyrol, on a small river which runs into the Adige, 8 miles S.S.W. of Bolzano.

TRAMIS, a word used by some medical writers, to express the line running along the middle of the ferotum from the penis to the anus.

TRAMMEL, an instrument or device, sometimes of leather, more usually of rope, fitted to a horse's legs, to regulate his motion, and form him to an amble.

It is also taken in many places for an iron moveable instrument in chimney's, to hang pots over the fire.

TRAMMEL-Net, or TRAMEL, is a long net with which to take fowl by night in champaign countries, much like the net used for the low-hill both in shape, size, and meshes.

The word comes from the French tremal, formed of the Latin tremalum or tremulum; of trees and nuda, because it is composed of three rows of meshes.

To use it, they spread it on the ground, so as the nether or farther end, fitted with small plumbets, may lie loose thereon: then the other part being borne up by men placed at the fore-ends, it is thus tralled along the ground. At each side are carried great blazing lights, by which the birds are railed; and as they ride under the net, they are taken. See LARK.

TRAMMELLED, in the Manager. A horse is said to be trammelled, that has blues and white marks upon the fore and hind-foot of one side; as the far foot before and behind. He is so called, from the resemblance the white foot bears to a half-trammel.

TRAMMELLED-Forfe, Crofs, is one that has white marks in two of his feet that stand crofs-ways, like St. Andrew's crofs; as in the far fore-foot and the near hind-foot, or in the near-foot before and the far-foot behind.

TRAMMELS, in Mechanics, an instrument so called by the joiners, and used by them for drawing ovals upon boards. One part of it consists of a crofs with two grooves at right angles. The other is a beam carrying two pins which slide in these grooves, and also the describing pencil. All the engines for turning ovals are constructed upon the same principles with the trammels: the only difference is, that in the trammels the board is at reft, and the pencil moves upon it: in the turning engine, the tool, which supplies the place of the pencil, is at reft, and the board moves against it. See Decription of the principal properties of these instruments, by Mr. Ludlum, in Phil. Trans. vol. lxx. part ii. p. 378, &c.

TRAMONNEL, in Geography, a town of France, in the department of Mont Blanc; 14 miles W. of Chambery.

TRAMONTANE, or TRAMONTAIN, formed from the Italian tra, of the Latin trans, which signifies beyond; and non or mont, mountain; something beyond, or on the farther side, the mountains.

The term is particularly applied, by the Italian painters, to all such as live on the other side the Alps, i.e. all out of Italy: as the Germans, Flemifh, French, &c.

The French lawyers give the same title of tramontane, or ultramontane doctors, to the Italian canonists, Gomez, Holfiems, Panorm, &c. who go upon rules and maxims too favourable to the court of Rome, and contrary to those of France, &c. On the Mediterranean, and in Italy, a north wind is called tramontane, a tramontane wind.

Some also call the pole-star, tramontana. Hence the proverb, to loft the tramontane, that is, to be out of one's aim, to be difconcerted.

TRAMORE, in Geography, a small port-town of the county of Waterford, on a bay of the same name, where there is a very fine strand, from which it takes its appellation. It has a handfome market-houfe and assembly-room, and is much frequented for sea-bathing. It is 82 miles S.S.W. from Dublin, and about 6 S. from Waterford.

TRAMUTUL, a town of Naples, in Bafilicata; 13 miles S.S.E. of Potenza.

TRANADUXTA, in Ancient Geography, a town of Hifpania, in Beticca, in the country of the Betuli, between Meirala and Barbeofa. Potelmy.

TRANCALUT, in Geography, a town of France, in the department of the Aube; 9 miles S. of Nogent fur Seine.
TRANCHE, or Tranchet, is used by the French
armourers, to express that manner of partition called among
us, party per bend dexter.

A fauchetoon is said to be tranche cut, when it is divided in
two diagonally, the division coming from the dexter angle
of the chief to the sinister angle of the point. When it is
divided contrariwise, it is said to be taile, or party per bend
sinister.

TRANCHEFILE, in the Maems, the crois chain of a
bridle, that runs along the bit-mouth, from one branch to
the other.

TRANCOSO, in Geography, a town of Portugal, in
the province of Tra-os-Montes. In the beginning of the
17th century, Albacon, a Moorish king of Badajoz, laid
siege to this town, and perjured with great obstinacy, till
the inhabitants were driven to the last extremity, but were
relieved by king Alphonfo Henriquez, who defeated the
Moors with great slaughter; 9 miles W. of Pinhel.

TRANE, a town of Sweden, in the province of Skone;
9 miles W. of Christiansland.

TRANEKAR, an ancient fortress of Denmark,
in the island of Langeland.

TRANEMO, a town of Sweden, in the county of
Skane; 46 miles E.S.E. of Gothenburg.

TRANENT, a market-town in the presbytery and shire
of Haddington, Scotland, is situated on the eastern side of
a narrow valley, 10 miles E. from Edinburgh, and 380 miles
N. by W. from London. It was anciently called Tree-ar-
rient and Travernent, signifying the habitation in the vale.
The church is an ancient incommodious fabric, of a very
peculiar form. On the outside, it appears to consist of
three separate oblong houses; but when entered, is found
to be only one building. A square tower rises from the
centre, supported by the side-walls of the middle building,
and by crofs arches. Two weekly markets are well sup-
plied with butcher's meat. The parifh of Tranent extends
about six miles in length, and three miles in breadth, and is
divided by the great cafl road into two nearly equal parts.
It comprises the villages of Cockenzie, Port Seaton, Seaton,
St. Clement's Wells, and Welter Falfide. The surface is
level and well cultivated. The coaf abounds with oyster-
beds, but they are nearly exhausted by over-dredging.
Coal is abundant, and is worked at three collieries to a great
extent. At Cockenzie is a great manufacturé of common
fatt; and at St. Clement's Wells is the most confiderable
fifillary in Scotland. According to the population return
of the year 1811, the inhabitants of this parish were 2356,
occupying 649 houses. Here is a parochial school, with a
salary to the maller of 300 marks and perquisites: here are
also seven other schools. After the reformation, the parifh
of Seaton was annexed to that of Tranent; but it was re-
duced in 1666, by making the baronies of Prellon-Grange
and Prellon-Pans a new parifh, under the name of Prellon.
In 1695, the parifh of Tranent was further diminished, by
the north-east corner of it being annexed to the new parifh
of Glades-Muir. In 1493, a collegiate church was founded
in the village of Seaton, by George, lord Seaton, which is
still nearly entire. The molf ancient edifice in the parifh
is that of St. Germans, now the seat of David Anderson, eqq.
where an hospital was founded previous to the year 1296.
It was afterwards possessed by the Knights Templars; and
after its suppreffion, was granted in 1494, with molf of its
revenues, by King James IV., to the King's College of
Aberdeen. The battle of Prellon, in 1746, was fought
partly in this parifh.—Beauties of Scotland, vol. i. 1805.
Chalmers's Caledonia, vol. ii. 1810. Carlile's Topo-
ographical Dictionary of Scotland, 1812.

Vol. XXXVI.

TRANFRANT, a town of Algiers, near the coast;
30 miles S.W. of Oran.

TRANG, a river of Lower Siam, which runs into the
Indian sea, N. lat. 7°. E. long. 69° 33'.

TRANANGO, a town of Afia, in the kingdom of Jo-
hore, near the fea, on the side of a river, which has a shallow
bar and several rocks scattered about. There are about
1000 houses; 110 miles N. of Pahang. N. lat. 5° 30'.
E. long. 104° 15'.

TRANGARDE, a town of Hindooftan, in the county of
Calicut; 8 miles N.E. of Paniany.

TRANJE, in Heraldry, the diminutive of a felle,
cornerly called a bar.

TRANI, in Geography, a city of Naples, and capital of
the province of Bar; the see of an archbishop, and residence
of the governor; 21 miles W. of Bar. N. lat. 41° 19'.
E. long. 16° 28'.

TRANKEY, a name given in the island of Carrick,
near the Persian shore, to a veffel about the fize of a Peter-
boat, sharp at both ends. It is built of very rough pieces
of wood, rudely put together, and covered over with a thick
coat of bitumen, with which the country abounds. These
veffels fail with great speed with either end foremost, having
no diſtribution of head from stern. The island of Carrick is
about twelve miles long and benv broad, and contains be-
tween 600 and 700 inhabitants. It abounds with goats, but
has very few cows, and no beafts of prey; nor are there any
fowls, tame or wild, except firk and turtle-doves. It pro-
duces few vegetables, but has wheat, rice, and barley,
though not in fufficient quantity for the inhabitants, whole
food is fish, with which they are plentifully supplied from
the vicinity of the island. Here is also very fine turtle, but
not eaten by the natives.

TRANQUEBAR, in Geography, a fea-port town of
Hindooftan, in the country of Tanjore, situated on the
coff of Coromandel, with a harbour, at the mouth of one
of the branches of the Cauvery, defended by a fortrefs,
erected by the Danes in the year 1621, who had obtained
a grant of the town, and a fertile territory, from the rajah
of Tanjore, for an annual rent of about 720l. In the be-
ginning of the preffent century, the prince of Tanjore at-
temted to feize on Tranquebar, and began a regular fiege;
but by the affiftance of the English, he was compelled to
give over the attempt, and make peace. The town is be-
tween two and three miles in circumference, and surrounded
with a wall and several balifons, well provided with artil-
illery; within the walls are three Christian churches, one
of which is for Roman Catholics, defendants of Portuguese
in poftiffion of the town before the Danes: a large moftage
for the Mahometans, and several pagodas for the Gentoons.
The territory belonging to the town is confiderable, and is
full of populous villages; 56 miles S. of Pondicherry. N.
lat. 11° 3'. E. long. 79° 54'.

TRANQUILITY, a town of New Jersey; 8 miles
S. of Newtown.

TRANQUILLO, a cape at the south end of the island
of Rhodes. N. lat. 36° 21'. E. long. 27° 28'.

TRANS, a town of France, in the department of
the Ille and Vilaine; 6 miles S.E. of Dole.

TRANSCACCO, a town of Naples, in Abruzzo Ultra;
8 miles S. of Colano.

TRANSACTION, Transactio, in the Civil Law,
an accommodation of some bimelines or dispute between
two parties, by a mutual and voluntary agreement or contract
between them.

TRANSACTIONS, Philosophical, are a kind of journal of
Transcendental Quantities, among Schoolmen. See Quantity.

Transcendental Quantities, among Geometricians, are indeterminate ones; or such as cannot be expressed or fixed to any constant equation. Such is a transcendental curve, or surface.

M. Leibnitz has a dissertation in the Acta Erud. Lipf. in which he endeavours to shew the origin of such quantities; viz. why some problems are neither plain, solid, nor sur-solid, nor of any certain degree, but do transcend all algebraical equations.

He also shews how it may be demonstrated without calculus, that an algebraic quadratrix for the circle or hyperbola is impossible: for if such a quadratrix could be found, it would follow, that, by means of it, any angle, ratio, or logarithm, might be divided in a given proportion of one right line to another, and this by one universal construction; and consequently the problem of the section of an angle, or the invention of any number of mean proportions, would be of a certain finite degree.

Whereas the different degrees of algebraical equations, and therefore the problem, understood in general of any number of parts of an angle, or mean proportions, is of an indefinite degree, and transcends all algebraical equations.

Transcendental Curves, in the Higher Geometry, is such a one as cannot be defined by any algebraical equation; or of which, when it is expressed by an equation, one of the terms is a variable quantity. See Curve.

These curves are the same with what Descartes, and, after his example, several others, call mechanical curves, and which they would have excluded out of geometry; but for Isaac Newton and M. Leibnitz are of another sentiment. For, in effect, in the construction of geometrical problems, one curve is not to be preferred to another, as it is defined by a more simple equation, but as it is more easily described than that other. See Geometrical Line.

And some of these transcendental or mechanical curves are found of greater use than all the algebraical ones together, except the circle.

Add, that M. Leibnitz, in the Acta Eruditor. Lipf. gives us a kind of transcendental equations, by which these transcendental curves are actually defined, and which are of an indefinite degree; that is, are not always the same in all the points of the curve.

Whereas algebraists use to assume some general letters or numbers of the quantities sought, in these transcendental problems; M. Leibnitz assumes general or indefinite equations for the lines sought; e. g. putting $x$ and $y$ for the absciss and ordinate, the equation he uses for a line sought is $a + bx + cy + dx + ey = f$, &c. = 0. By the help of which indefinite equation, which in reality is finite, for it may always be determined how far forever it is necessary to raise it, he seeks the tangent; and comparing that which results, with the given property of tangents, he finds the value of the assumed letters $a, b, c$, and thus defines the equations of the line sought.

If the comparison above mentioned do not proceed, he pronounces the line sought not to be an algebraical, but a transcendental one.

This supposed, he goes on to find the species of transcendence; for some transcendals depend on the general division or section of a ratio, or upon the logarithms, others upon the arcs of a circle, and others on more indefinite and compound inquiries.

Here, therefore, besides the symbols $x$ and $y$, he assumes a third, as $e$, which denotes the transcendental quantity; and
and of these three forms a general equation of the line
fought, from which he finds the tangent according to the
differential method, which succeeds even in transcendental
quantities. What he finds he compares with the given pro-
properties of the tangent, and so discovers not only the value of
\( a, b, c, \) &c. but also the particular nature of the tran-
scendental quantity.

And though it may sometimes happen that the several
transcendents are so to be made use of, and these of dif-
ersent nature, too, one from another; also, though there
be transcendents, or transcendentials, and a progression of
thee in infinitum; yet we may be satisfied with the most
easy and useful one, and for the most part may have re-
course to some peculiar artifices for shortening the calculus,
and reducing the problem to as simple terms as may be.

This method being applied to the busineses of quadratures,
or to the invention of quadratrices, in which the property
of the tangent is always given, it is manifest not only how
it may be discovered, whether the indefinite quadrature may
be algebraically impossible, but also how, when this impos-
ibility is discovered, a transcendental quadratrix may be
found; which is a thing which had not before been shown.
So that it seems that geometry is by this method carried in-
finitely beyond the bounds to which Vietr and Descartes
brought it; since, by this means, a certain and general
analysis is established, which extends to all the problems
which are of no certain degree, and consequently not com-
prehended within algebraical equations.

Again, in order to manage transcendental problems
(wherever the busineses of tangents or quadratures occurs)
by a calculus, there is hardly any that can be imagined
shorter, more advantageous or universal, than the differential
calculus, or analysis of indivisibles and infinites.

By this method we may explain the nature of tran-
scedental lines by an equation. Let \( a \) be the arc of
a circle, and \( x \) the vered sine; then will
\[
a = \frac{\int f dx}{\sqrt{2x - x^2}}
\]
and if the ordinate of the cycloid be \( y \), then will
\[
y = \sqrt{2x} - x + \frac{\int f dx}{\sqrt{2x - x^2}}
\]
which equation perfectly ex-
preffes the relation between the ordinate \( y \) and the abscissa \( x \);
and from it all the properties of the cycloid may be demon-
strated.

Thus is the analytical calculus extended to those lines
which have hitherto been excluded, for no other cause but
that they were thought incapable of it.

TRANSOLATION, in Pharmacy, the same with
filtration, or percolation.

TRANSCRIPT, a copy of any original writing, par-
icularly that of an act, or instrinent, inserted in the body of
another.

In this sense we say, transcript of a fine, &c. See Fine
and Duplicate.

TRANSCRIPTO recognitionis falsely coram justitiariis
inunicatibus, &c. in Law, is a writ for certifying a recog-
nizance into chancery, taken before the justice in eye.

TRANSCRIPT petitus facti levandi mitten in cancellarius, is
a writ for certifying the foot of a fine levied before justices
in eye, &c. into chancery.

TRANSEAT, in the Schools, &c. a term purely Latin,
figurifying, let it pass, or suppose a proposition to be true,
without granting it.

Hence the proverb, transeat, Gratex om b, non legitur: the
phrase is said to have taken its rise from some ancient com-
mentators, or glossographers of the civil law, who, not
understanding Greek, paffed over all the words that oc-
curred in that language, without explaining them.

In the Roman chancery, a nil transeat is a kind of oppo-
sition made to the sealing of a bull, or to the delivery of
some other instrument, till the parties, against whose interest
it is directed, have been heard against it.

TRANSELEMENTATIUN, a change of the ele-
ments or principles of one body into those of another.

Such is that which Roman Catholics contend for in the
eucharist, where the elements of bread and wine, they say,
are changed into those of flesh and blood. See Transub-
stantiation.

Transformation, wherever it happens, is always allowed
miraculous, or an effect beyond the ordinary powers of
nature.

TRANSEPT, the cross aisle, extending from north to
south across the nave and main aisles of our ancient churches.
In some churches, as in the cathedral of Salisbury, there is
a double transept, which makes it resemble an archepisco-
cal cross in its ichnography.

TRANSFER, in Commerce, &c. an act by which a
person surrenders his right, interest, or property, in any
thing moveable or immoveable, to another.

The sale or donation of an inheritance, &c. transfers the
property, rights, &c. of it.

The term is principally used, in the commerce of flocks,
for the affigning and making over of subscriptions or shares
therein to such as purchase them of the proprietors. In the
South Sea Company, the Bank, East India, &c. transfers
are made by entering the flock under the name of the pur-
chaser under his proper letter of the alphabet.

A counterfeit, in this case, is by act of parliament made
a capital crime.

TRANSFIGURATION, among Divines, that mira-
culous change wrought by Jesus Christ, in presence of
St. Peter, St. James, and St. John, on mount Tabor,
where he appeared in his glory, in company with Moses
and Elias. See the description of it in St. Matthew,
chap. xvii.

The term is also applied to a feast held in the Romish
church on the 6th of August, in commemoration of that
miracle.

TRANSFORMATION, a metamorphosis, or change
of form.

The chemists have been a long time seeking the tran-
formation of metals, that is, their transmutation, or the
manner of changing them into gold.

Among the mythics, by transformation is understood
a change of the contemplative soul, by which it is in some
measure defined, or converted into the subsistence of God,
and in which it is, as it were, both loosed and swallowed up
in the divinity, so as not to perceive its own differentiation
from God.

The word transformation is very liable to be abused:
but many of the mythics use it innocently enough; meaning
no other by it than what St. Paul did, Vvivo ego, jam non
ego, vivi vero in me Christus.

Transformation is also sometimes used for what we
more properly call transubstantiation.

Transformation of Equations, in Algebra, is a method
of changing equations into others of a different form, but
of equal value. This operation is necessary in order to
prepare equations for a more easy solution. We shall sub-
join some examples of the most common and useful kind
under this head. The affirmative roots of an equation are
changed into negative roots of the same value, and vice
versa, by only changing the signs of the terms alternately,
beginning with the second.

Thus,
Thus, the roots of the equation \( ax^4 - x^3 - 19x^2 + 49x - 30 = 0 \) are \( 1, +2, +3, -5 \); whereas the roots of the same equation having only the signs of the second and fourth terms changed, \( a'x^4 + x^3 - 19x^2 - 49x - 30 = 0 \) are \( -1, -2, -3, +5 \).

If it be required to transform an equation into another that shall have its roots greater or less than the roots of the proposed equation by a given difference, the method is as follows. Let the proposed equation be the cubic \( px^3 + qx - r = 0 \); and let it be required to transform it into another, whose roots shall be less than the roots of this equation by some given difference \( \delta \), i.e., suppose \( y = x - \delta \), and consequently \( x = y + \delta \); then, instead of \( x \) and its powers, substitute \( y + \delta \) and its powers, there will arise this new equation.

\[
(A) \quad y^3 + 3\delta y^2 + 3\delta^2 y + \delta^3 - p'y^3 - 2p'y y - p^2y + q'y + q\delta = 0;
\]

whose roots are less than the roots of the preceding equation by the difference \( \delta \).

To find an equation whose roots shall be greater than those of the proposed equation by the quantity \( \delta \), suppose \( y = x + \delta \), and \( x = y - \delta \), and the equation will have this form.

\[
(B) \quad y^3 - 3\delta y^2 + 3\delta^2 y - \delta^3 - p'y^3 + 2p'y y - p^2y + q'y - q\delta = 0.
\]

If the proposed equation be in this form, \( px^3 + qx - r = 0 \), then by supposing \( x + \delta = y \), there will arise an equation agreeing in all respects with the equation \( (A) \), but that the second and fourth terms will have contrary signs.

\[
(C) \quad y^3 - 3\delta y^2 + 3\delta^2 y - \delta^3 + p'y^3 - 2p'y y + p^2y + q'y + q\delta = 0.
\]

By supposing \( x - \delta = y \), there will arise an equation agreeing with \( (B) \) in all respects, but that the second and fourth terms will have contrary signs to what they have in \( (B) \) as:

\[
(D) \quad y^3 + 3\delta y^2 + 3\delta^2 y + \delta^3 + p'y^3 + 2p'y y + p^2y + q'y + q\delta = 0.
\]

Hence we see how the second or other intermediate term may be taken away out of an equation; for, in the equation \( (A) \), whose second term is \( 3\delta - p \times y^2 \), if we suppose \( \delta = \frac{1}{2}p \), and consequently \( 3\delta - p = 0 \), the second term will vanish. In the equation \( (C) \), whose second term is \( -3\delta + p \times y^2 \), supposing \( \delta = \frac{1}{3}p \), the second term also vanishes. But the equation \( (A) \) was deduced from \( px^3 + qx - r = 0 \), by supposing \( y = x - \delta \), and the equation \( (C) \) was deduced from \( px^3 + qx - r = 0 \), by supposing \( y = x + \delta \), whence may be deduced the following rule for exterminating the second term out of any cubic equation; viz. add to the unknown quantity of the given equation the third part of the co-efficient of the second term with its proper sign, viz. \( \frac{1}{3}p \delta \), and supposing this aggregate equal to a new unknown quantity \( y \). From this value of \( y \) find a value of \( x \) by transposition, and substitute the value of \( x \) and its powers in the given equation, and there will arise a new equation wanting the second term.

E.g. Let the equation be \( x^3 - 9x^2 + 26x - 34 = 0 \); suppose \( x = 3 = y \), or \( y + 3 = x \), and substituting according to the rule, we shall have,

\[
\begin{align*}
y^3 + 9y^2 + 27y + 27 & \quad - 9y^2 - 54y - 81 \\
+ 26y + 78 & \quad = 0,
\end{align*}
\]

or

\[
y^3 - y - 10 = 0, \text{ an equation wanting the second term.}
\]

If the equation proposed be of any number of dimensions \( n \), and the co-efficient of the second term with its sign prefixed be \( -p \), then supposing \( x - \frac{p}{n} = y \), and \( x = y + \frac{p}{n} \), and substituting this value for \( x \) in the given equation, there will arise a new equation that shall want the second term; whence the second term may be exterminated out of any given equation by the following rule. Divide the co-efficient of the second term of the proposed equation by the number of dimensions of the equation; and affixing a new unknown quantity \( y \), add to it the quotient having its sign changed; then supposing this aggregate equal to \( x \), the unknown quantity in the proposed equation; and for \( x \) and its powers, substitute the aggregate and its powers, and the new equation will want its second term.

Let the proposed equation be a quadratic, as \( x^3 - p \times x + q = 0 \); then suppose \( y + \frac{1}{2}p = x \) according to the rule, and substituting this value for \( x \), we shall have,

\[
\begin{align*}
y^3 + py + \frac{1}{4}p^2 & \quad - py + \frac{1}{4}p^2 \\
+ q & \quad = 0.
\end{align*}
\]

Having found the value of \( y \), that of \( x \) may be had by means of \( y + \frac{1}{2}p = x \); e.g., since \( y^3 + q - \frac{1}{4}p^2 = 0 \), \( y^3 + \frac{1}{4}p^2 - q \), and therefore \( x = y + \frac{1}{2}p \) or \( x = y + \frac{1}{2}p \), an equation shall arise having no second term. And if the proposed equation is of five dimensions, we must suppose \( x = y + \frac{1}{3}p \), &c. It is plain, that in a quadratic equation wanting the second term, there must be one root affirmative and one negative, and thee must be equal to one another. In a cubic equation wanting the second term, there must be either two affirmative roots equal, taken together, to a third root that must be negative.

Let an equation \( x^3 - p \times x^2 + qx - r = 0 \) be proposed, and let it be required to exterminate the second term. By supposing \( y = x - \epsilon \), the co-efficient of the second term in the equation \( y \) is found (see equation A supra) to be \( 3 \epsilon^2 - 2p \epsilon + q \). Suppose that co-efficient equal to nothing, and by resolving the quadratic equation \( 3 \epsilon^2 - 2p \epsilon + q = 0 \), you will find the value of \( \epsilon \), which substituted for it in the equation \( y = x - \epsilon \), will shew how to transform the proposed equation into one that shall want the third term.

The quadratic \( 3 \epsilon^2 - 2p \epsilon + q = 0 \) gives \( \epsilon = p \mp \sqrt{p^2 - 3q} \), so that the proposed cubic will be transformed into an equation
Multiply $a + \ldots$ and $\ldots$; $x$ is become $= f$ since $+ = r = o$. Then it after $a \ldots$ Therefore, and $P \ldots^2 = \ldots$ cleared of terms, fore, proposed as equal the only proposed as equal $x$ or $x = \frac{y}{n}$; therefore, if $\ldots$ producing the highest $x$, if then $\ldots = m \ldots r = o$. Then transforming the equation into one that shall have unit for the co-efficient of the highest term, you find $y - n p x y + m^2 e n q x y - m^3 n r e = c$. Or, neglecting the denominator of the last term $\frac{r}{e}$, you need only multiply all the equation by $m n$, which will give $m n x - n p x + m q x - \frac{m n r}{e} = o$, and then $y^3 - n p x y^2 + m^2 n q x y - \frac{m^3 n r}{e} = o$. After the values of $y$ are found, it will be easy to discover the values of $x$; since, in the first case, $x = \frac{y}{m n}$; in the second, $x = \frac{y}{m n}$. E. g. The equation $x^3 - 3 x - \frac{146}{27} = 0$ is first reduced to this form $3 x^3 - 4 x - \frac{146}{9} = 0$, and then transformed into $y^3 - 12 y - 146 = o$. Sometimes, by these transformations, fluids are taken away. E. g. The equation $x^3 - p \sqrt{a} x^2 + q x - r \sqrt{a} = o$, by putting $y = \sqrt{a}$, or $x = \frac{y}{\sqrt{a}}$, is transformed into this equation $\frac{y^3}{\sqrt{a}} - p \sqrt{a} x^2 + q x + \frac{y}{\sqrt{a}} - r \sqrt{a} = 0$; which, by multiplying all the terms by $a \sqrt{a}$, becomes $y^3 - p a y^2 + q a y - r a^2 = 0$, an equation free of surds. An equation, as $x^3 - p x^2 + q x - r = o$, may be transformed into one whole roots shall be the quantities reciprocal of $x$, by supposing $y = \frac{1}{x}$, and $y = \frac{a}{r}$, or by one supposition $x = \frac{r}{a}$, become $x^3 - q x^2 + p r x - r^3 = o$. By this transformation, the greatest root in the one is transformed into the least root in the other: for since $x = \frac{1}{y}$, and $y = \frac{1}{x}$, it is plain that when the value of $x$ is greatest, the value of $y$ is least, and conversely. See on this subject Macfarlin’s Algebra. part ii. chap. iii. iv. Saunders’ Algebra. vol. ii. p. 687, &c. See Reduction of Equations. TRANSMUGA, in Antiquity, a defirer. Among the Romans, defirers were commonly punished by cutting off their hands, it being thought that living in such a miserable truncated condition would strike more terror than death itself. We find, however, that defirers were likewise crucified, burnt alive, thrown from the Tarpeian rock, or exposed to wild beasts at public shows. TRANSPERFUSION, Transfusion, compounded of the preparation trans, beyond, farther, and funder, i pour, the act of pouring a liquor out of one vessel into another. In the preparations of chemistry and pharmacy there are frequent transusions of liquors, syrups, &c.

TRAN-
Transfusion of the Blood, in Physiologus, the transfer of the blood of one animal into the vascular system of another, by means of a tube connected with a vein of the receiving animal, and an artery of the other. A vein is first opened, to allow the efflux of the animal's own blood, and thus to make room for the fresh supply. This preliminary evacuation produces syncope; the animal ceases to move, and appears dead; but when the end of the tube connected with the artery of the other animal is introduced into the vein, and the stop-cock is turned, the current of arterial blood produces reanimation; the power of motion and the former strength are restored.

The experiments on this subject were first tried in England, where T. Clarke failed in his attempts in the year 1657; Phil. Trans. N° 35. Lower succeeded in 1665, and communicated his success to the Royal Society; Phil. Trans. N° 30. This was on dogs: Th. Coxe did it on pigeons; Birch, vol. ii. p. 50. Coxe and King exhibited the experiment on dogs before the Society, transfusing the blood from vein to vein; ibid. p. 123; Phil. Trans. N° 19, 20, 21, 27. It was again performed from a sheep to a dog; Birch, vol. ii. p. 133; and the experiment was afterwards frequently repeated; Birch, vol. ii. pp. 112, 179, 180, 191. It was also performed in France and other countries.

The first proceedings in this matter seem to have been ingrafted merely by curiosity, or at least by a disposition to inquire into the powers of the animal economy. But higher views soon opened themselves: it was conceived that invertebrate species, such as reptiles, fish, and others, supposed to retire in the blood, might be expelled with that fluid, while, with the blood of a sheep or calf, the health and strength of the animal might be transferred to the patient. The most ingenious anticipations were indulged on the occasion, and the new process was almost expected to realize the alchemical reveries of an elixir of life and immortality. The experiment was first tried in France, where the blood of a sheep was transfused into the veins of a stupid youth, with the effect, as was asserted, of sharpening his wits. (Phil. Trans. 27, 32.) And a similar experiment was made without injury in a healthy man. (Ibid.) Lower and King transferred blood from a sheep into the sylem of a literary man, who had offered himself for the experiment, at first without inconvenience, but afterwards with a lefs favourable result; the Royal Society still recommending perseverance in the trials. Birch, vol. ii. pp. 216, 225, 227, 312. Phil. Trans. N° 30.

These events were not calculated to keep up the expectations that had been raised, of brilliant results; and other occurrences produced still more severe disappointment. The French youth first mentioned died lethargic soon after the second transfusion: the physicians incurred great disgrace, and were judicially prosecuted by the relations. (Phil. Trans. 28, 32. 36, 37, 54.) Not however discouraged by this unlucky cafe, they soon after transfused the blood of a calf into a youth related to the royal family, who died soon after with the interlins inflamed. (Phil. Trans. 28, 30.) The parliament of Paris now interfered, and proscribied the practice. (Du Hamel, Hist. Acad. Reg. Societ. p. 21, 22.) Two perfons having died after transfusion at Rome, the pope also issued a prohibitory edict. (Eph. Nat. Cur. Dec. 1., ann. 1, obf. 149. Merclin de Transfus. Sanguinis, p. 25, 85.) From this time the practice has not been repeated in the human subject; although it has been repeatedly done, as a matter of philosophical curiosity, on animals who have suffered no interruption of their health and strength. Haller, Elementa Physiologiz, lib. iii. fect. 3. § 15—29.

Transgression, Transgression, compounded of trans, beyond, and gradire, to go, an offence against some law, or a breach or violation of it.

The term is chiefly used in respect of the laws of God. In the doctrine of original sin, all mankind are supposed to share with Adam in the guilt of his first transgression. See Original Sin.

Moses threatens the transgressors of his law with a variety of temporal punishments.

Transgression, in our law, a writ, usually called a writ of trespas.

Of this Fitzherbert has two forts; one vicountial, thus called because directed to the sheriff, and not returnable, but to be determined in the country. Its form differs from that of the other, as wanting the words quare et armis, &c. See Vicountial.

The other is termed a writ of trespass, and to be sued in the common pleas and king's bench. See Trespass.

Transient Action. See Action.

Transient Air. See Air.

Transitory, in lat. 14 Car. II. c. 11, is used for a sudden-bouse warrant, or let pass; from the verb transire, I pass forth.

Transit, Transitus, from transire, to pass over, of trans and co, I go beyond, in Astronomia, signifies the passage of any heavenly body over the meridian, or of one body over another having the same apparent declination. When the smaller body is behind the larger, it is said to suffer an occultation; but when it passes before, it is said to transit the other. Thus a star behind the moon suffers an occultation, but a planet passing over the sun's disc is said to transit him.

Mercury and Venus, &c. in their transits over the sun, appear like dark specks. See Meridian and Parallax.

Transit-Instrument, or Transit-Telescope, is an astronomical instrument, by which the transit or meridian passages of the heavenly bodies are taken. Before telescopic fights were introduced into the practice of astronomy, the instruments for finding a meridian line, and for observing meridian passages, were very different from what they are at the present day. So early as about the year 1700, Sir Christopher Wren, Mr. Gray, and Dr. Derham (see Phil. Trans.) had contrived instruments for this purpose; the last and first of which we shall briefly notice, by way of contrast with the modern transit-instrument, to shew the improvements that have taken place within the last century. In fig. 11. Plate XXXII. of Astronomical Instruments, A B is a horizontal bar of hard wood or metal, turning freely on the central stem of a tripod, and carrying two upright bars, C D and E F, which are bent a little near the lower extremity, and turned to a right angle at top; where there is a horizontal joint, as seen in the figure. From each of these upright bars are suspended a plumb-line, so as to come close to the ends of the horizontal bar A B respectively. At the ends A and B are two vanes, or sight-holes, from the former of which the sun, S, may be seen through a smoked glass, and from the latter the pole-star, P, with the plumb-line interposed. The portions of the horizontal bar A C and B E are moveable round the joints at C and E, and the plumb-lines are long enough to be tangents to the angles of elevation required to the radius A B, which therefore will be proportional in any given latitude, whatever the dimensions may be. The use of this meridian instrument may be thus explained: when P is the pole-star, the whole instrument must be turned round till the eye at A sees the pole-star very.
very nearly in contact with the suspended line; and the con-
tact or bilection may then more conveniently be effected by
turning the vane a little round the joint E: in this situation,
if the ear be at the moment on the true meridian by cal-
ulation, the direction of light will be in the meridian line,
and bodies passing to the north, may be seen passing the
plumb-line B F at any altitude below the pole. Suspend
now the plumb-line A D from D, and turn the horizontal
part on its joint, till this line bisects the vane at A, and
move the vane at B gently round its joint E, till it is also
intercepted by the other plumb-line A D, and the two lines
will be both suspended in the meridian line; consequently,
an eye looking through the vane at B, will see any body to
the south transit the line A D, provided it be below the
ecliptic.

The condition to be attended to in the construction of
a modern transit-instrument is, that while the telescope,
through which the object is viewed, undergoes a change of
elevation, its line of collimation shall move exactly in the
plane of the meridian circle of the place of observation,
after it has been once adjusted accurately into a line that
lies truly parallel with the north and south line. To effect
this purpose, it was found necessary that the axis of motion
should be exactly horizontal, in the direction of a line that
joins the east and west points; that it should not bend by
the superincumbent weight in any position whatever;
and that the line of collimation should always cut the line of
the axis at right angles, without the least perceptible devia-
tion; for it is only while these conditions are fulfilled, that
the line of collimation will ascend from the horizon in a
truly vertical line, during an increase of altitude; and that
this vertical line will continue also in the meridian. The
first person, we believe, who used an astronomical instrument
poising the essential properties which we have described,
was Dr. Halley at Greenwich Observatory, soon after the
year 1719, which was the year in which he succeeded Flam-
nel as astronomer-royal. According to Dr. Smith, the
tube of Halley’s telescope was five feet and a half long,
and its axis of motion about an ell; it had also cross-hairs
with the requisite adjustments in the eye-piece, with Y sup-
ports for the pivots of the axis, likewise adjustable, and
the axis was levelled by a spirit-level, so that but little room
remained for subsequent improvement, except in what re-
lates to the achromatic object-glasses, and the method of illu-
minating the hairs, and of limiting the quantity of light
necessary for particular observations. In the older instru-
ments, the reflected light of a lamp or candle was received
at the aperture of the telescope, as shown in fig. 15.

Plate XXIX. of Astronomical Instruments; but this mode of
illuminating the hairs was found inconvenient, on account
of the change of elevation of the telescope in successive ob-
servations, which required as many new adjustments of the
lamp; and it was not till about the year 1787, that Dr.
Ufer of Dublin contrived the new method of transmitting
light through one end of the horizontal axis to a diagonal
perforated reflector, in the body of the tube, which brings
it to the hairs after reflection, whatever the altitude
may be to which the telescope is pointed. In our descrip-
tion of the different transit-instruments, it will not be nec-

Transit-instruments, as they are now constructed, may be
considered either as they are stationery or portable; the
former of which was the original construction, and con-
tinues to be used in fixed observatories, for the purpose of
determining, in conjunction with a good astronomical clock,
the right ascensions of the heavenly bodies; but the latter
may be used in any place, for ascertaining the rate of a
clock or chronometer, and when nicely brought into the
meridian, for determining also the right ascensions with con-
considerable accuracy.

Fig. 1. Plate XXXII. of Astronomical Instruments, repre-
sents a transit-instrument of the most approved stationary
construction, which may be made of any dimensions that
the aperture and focal length of the object-glasses will allow;
but is usually made with a tube of from 30 to 120 inches
long, and of proportional thickness, according to the degree
of accuracy that is required. A and B are either a pair of
solid blocks firmly fixed in the ground, or a pair of pillars
of firm masonry, sufficiently high to allow the eye of the
observer to reach the eye-piece when the angle of elevation is
about 45°. Fig. 2. exhibits a lateral view of the fame, ex-
cept that only one of the pillars is seen, in the direction of its
breadth; while fig. 3. is an enlarged representation of the
eye-end of the telescope; and figs. 4. and 5. are appendages
attached to the superior end of the pillars; all which we
shall describe in due succession. The tube of the telescope
does not unfually of brass, of which the eye-end is at a, and
the object-end at b: in this instrument before us it is five feet
long; c and d, which appear to be two cones, are united to
the central part of the tube, and form the axis of motion
about three feet long; they are of brass also, and hollow,
but are rendered very strong by circular pieces of metal, of
different diameters, that are forced into the hollow space one
after another at equal intervals; so that this axis has all the
strength without the weight of solid metal. The pivots at
the extreme ends of the axis are of bill-metal, and turned
in the lathe to precisely the fame dimensions, so that they may
at any time have their positions reversed without afflicting
the horizontal line. The pieces, seen by figs. 4 and 5, are
made fast to the upper extremities of the pillars, and receive
the pivots of the axis, each having an angular notch, called a
Y, which are adjustable by proper screws, one in a vertical,
and the other in a horizontal direction. The situation of
each of these screws is seen by the handle inflected on the
axis of the screw to which it belongs, and the manner
in which the moving parts are made to slide by the ac-
tion of the screws, between the parallel checks of the
small frames, requires no particular description. When
the weight of the telescope and of its axis is considerable, some
part of this weight is supported by a loaded lever, as seen in
fig. 4., which, by acting on the ponderous matter at some distance
from the pivots, relieves them from a portion of the fires
that would otherwise be laid on them by the whole weight.
Hence the pivots have their friction diminished; and conse-
quently their dimensions, as well as those of the Y’s, remain
unaltered. When the weight is small, such appendage may
be dispensed with, provided the Y’s and pivots be rectified
occasionally, when they are a little altered by attrition.
At a small distance from one end of the axis a graduated
circle is made fast, which moving with the axis, shews the
degree and minute of elevation, that the telescope has in any
position, on two opposite adjustable verniers, which carry a
spirit-level, and are clamped in a horizontal position, as seen
in fig. 2. The extreme end of the axis, which is remote
from the graduated circle, has a lens screwed into it, through
which the light of a lamp is made to pass in its way to the
diagonal reflector, contained between the two conical por-
tions of the axis, within the tube; and by the light thus
transmitted and reflected, the spider’s lines, substituted for
hairs or wires, are illuminated; without which illumination
they would be invisible by night, except when the Moon or
Venus
VENUS is observed. The spirit-level, which hangs on two vertical rods over the axis, is capable of being reversed in position, and is used, in the first place, for placing the axis of the telescope perfectly horizontal, and in the next, for watching the permanence of such position by the situation of its bubble. As the ends of the brafs tube that contains the level revolve on two opposite pins, projecting from the rods of suspension respectively, the bubble will always occupy the upper part of the glass tube in every flate of the telescope's elevation; but in the reversed position of the axis c d, the level will be underneath it, though the bubble will retain its place. The infide of the tube is ground to such a long radius, that single seconds of deviation from a true horizontal position may be read on an ivory scale by the end of the bubble. When, however, the telescope is large, and the axis confluently bulky, a spirit-level cannot be so well applied, as with telescopes of ordinary size; and if this be the case, a bason of pure mercury may be substituted with great advantage: for when the pole-star is on the meridian, and shins brightly, its reflected image, and also the star itself, will both pass together over the central vertical ipider's line, at corresponding degrees of elevation and depression of the telescope, provided the axis be truly horizontal, and as little time as possible be suffered to elapse between the superior and inferior observations: but to render this operation easy, flops may be clamped to the graduated circle, to limit the space that is necessary to be described by the object-end of the telescope. There is in the instrument before us, moreover, a plumb-line apparatus for levelling the axis, which is seen in fig. 3, and partly on a larger scale in fig. 2, at a is a pin, from which a fine silver wire may be suspenfed; and at c is a horizontal screw, between two threads of which the wire refts, so as to be capable of adjutment in a lateral direction: the long narrow tube, which lies parallel with the main tube of the telescope, then receives the wire, and is put into a perpendicular direction, so that the suspenfed plummet may be immerfed in a vefsel of water; the microscope at f, next the eye-piece, now uppermost, views the image of a transparent dot, as a point to which the wire is referred, and to cover which it is now brought by the screw c: at the opposite end of the main tube, near b, is a similar microscope with a point of suspension and adjusting screw; so that when the object-end of the telescope is placed uppermost, the same adjutment is required to bring the fretched wire over its luminous image: and when this is done, the wire will befeét the lower luminous image also, if the axis be perfectly level, but not otherwise. To produce this coincidence, it will usually be necessary to adjut partly by the vertical screw of the proper Y, and partly by the fcrews of the plumb-line apparatus after each inverion of the tube.

When the achromatic object-glafe does not produce a round and well-defined point, as the image of a large star, in any observation, it will be advantageous to diminish the aperture till this appearance takes place, which will generally be the case when the central part of the object-glafe only transmits the light of such a star; but for small stars, it will always be better to allow the whole aperture to be open: not only because more light is thus admitted, but also because the image of a small ftar is always a point free from luminous irrations, even in inferior achromatif telescopes. In the ten-feet telescope which Mr. Troughton has lately converted into a magnificent transit-instrument at Greenwich (viz. in 1816), he has ingeniously contrived a species of iris, that will contract or enlarge the effective part of the aperture by the simple turning of a milled nut, within reach of the hand, while the eye is at its place for making the observation; so that the proper quantity of light can at any time be proportioned to what the nature of the observation may require. There are lally fcrews of adjutment of the ipider's lines in the eye-piece both for horizontal and vertical motion, and, in the bife instruments, the eye-piece itself has a ftilling horizontal motion, which enables the observer to keep the celestial body, though in motion, at the centre of the field of view during the whole passage over the five lines.

The bife construction of a portable transit-instrument which we have yet seen, is that represented by figs. 6 and 7, which exhibit all the parts that arenee necessary for description, and which was one of the numerous inventions which we have had occasion to notice as the offspring of Troughton's ingenuity. The telescope of this instrument is 20 inches long, and magnifies from 20 to 35 times, according to the eye-pieces that are used, two of which are usually of the prismatic or diagonal kind, to be used in high altitudes; the aperture is 1.75 inch, and the power is competent to see the pole-star by clear day-light. The construction of the tube and axis is similar to that of the stationary instrument, except that the graduated circle and double vernier, with the level, lie beyond the Y of the support, and the iris is wanting: otherwise it has all the adjutments for levelling the axis, and bringing the line of collimation to a meridian mark that the larger instrument sofizies, as well as those that rectify the position of the ipider's lines in the focus of the negative objective. The tube of the iris is a thick ring or rim of brafs, that receives three equi-distant fcrews for feet, besides the four fcrews that fix the two vertical frames thereto, which confluence the supports of the axis, one of which is seen entire in fig. 7. These supports are kept perpendicular by the interior bracing-bars, of which two are discoverable in fig. 6, attached by thumb-fcrews at both ends to the ring and upright frames respectively. The circular figure of the bafe is not only firm, but preserves its shape in all degrees of temperature; and when the parts are detached by loosening the thumb-fcrews, they will all pack into a box that is of a convenient size for carriage. The diameter of the circular bafe, and the confluence length of the axis, is a foot within, and the height of the supports thirteen inches. The graduated circle being of six inches diameter, admits of readings by each of the two opposite verniers to the accuracy of one minute, which is sufficient for finding the meridian altitude of any celestial body, of which the declination is known when the latitude is given; or for determining the latitude, when unknown, to the accuracy of one minute. If the circle were made a little larger, and three verniers substituted for two, a longer level might be used, and the readings might be accurate to 20" or 25": but as the instrument was never meant to be used as an altitude-instrument, the inventor considered only what dimensions are requisite for constituting an useful transit-instrument in a portable form. The level of this instrument is entirely detached, and equal in length to the axis itself; its shape is delineated in the upper part of fig. 9, and the notches of its end-pieces stand upon the pivots of the axis, so that the reversion of the ends is performed without the least impediment. It is however necessary to remove the level from the axis, when the horizontal adjutment is finished, to avoid its being displaced and broken by an alteration in the elevation of the telescope. There are usually three fluids of brafs included, with the darkening-glafees, lantern, and other appendages; two of which fluids have conical holes, to receive the points of the fcrews, or feet of the circular bafe: and for this purpose, all the fluids must be made fast to the flab or pillar which supports the instrument, by plate of Paris or putty injecte into many holes in the plate of the marble or stone,
Mr. Thomas Jones, of Charing-Cros, has made several 30 and 42-inch transit-instruments of the portable fort, supported by oblong frames of cast-iron, which look very neat, and answer the purpose very well, a drawing of which construction we should have introduced into our plate, if it would have admitted of such addition. These instruments have all the properties of the instrument we last described, and have of course greater powers in their telescopes, and are also cheaper in proportion to their size. He has also made some of them with telescopes of only twenty inches, for the sake of greater portability.

Before any useful observation can be made with a transit-instrument of either the stationary or portable construction, it is necessary that all the adjustments be nicely made, and also that they be examined occasionally after a few observations are finished, in order to prevent errors that cannot be detected, or at least appreciated, at a subse-quent period. These adjustments are nearly the same for all the common transit-instruments, and may be explained under eight heads, as follow; viz.

1. **To adjust the Spirit-Level.**—When the level hangs on, or is made fast to the axis, put the telescope in its place, and see to which end of the level the bubble runs, which will always be the more elevated end; bring it back to the middle by the Y-screw for vertical motion, or by the foot-screw under the end of the axis, if it be a portable instrument, and then invert the axis, end for end; then, if the bubble is again found in the middle, the level is already parallel to the axis; but if not, adjust one half of the error by the adjusting-screw of the level, and the other half by the Y-screw, or foot of the support, as the cafe may be; and let the operation of re-verting and adjusting by halves be repeated, until the bubble will remain stationary in either position of the axis, in which case the level will be right. When the detached level is used, that notch must be made a little deeper, by scraping with a penknife, which has the bubble resting on it, instead of using an adjusting-screw, with which it is not usually provided; and when the notches that rest on the pivots are once made right, they will seldom require a second rectification. In the hanging level there are side-screws also, which adjust for parallelism of the level, as it regards a line joining the pivots of the telescope's axis; and this adjust-ment is known to be truly made, when the bubble does not run to one end, when the level is moved some degrees by a rotatory motion round its pivots, or central pins of sus-pension.

2. **To place the Axis of the Telescope truly horizontal.**—If the spirit-level is made use of, which is generally the cafe in instruments of ordinary dimensions, the same operation which we have just described will put the axis level, at the same time that it puts the level parallel to the axis; for unless both these conditions are fulfilled, the adjustment of the level will be deranged by reversion, and when this is not the case, it is a proof that both the level and the axis are truly horizontal. Hence, when the level is previously adjusted, it will be sufficient to bring the bubble to the middle of the level by the Y-screw, or foot-screw alone, as the construction may require.

This adjustment may also be made, in the larger instruments particularly, by means of a plum-b-line, either applied to a frame, suspended by the pivots of the axis, that will leave the telescope parallel to the line of col-limitation, as we have deferred Troughton's in figs. 2 and 3; in either case, a dot is bisected by the plum-bl ine near the point of suspension, and another near the lower end of the line, in both the reversed positions of the axis, when the adjust-ment is truly made by the proper screws, as above directed. But the most accurate, as well as probably the most conve-nient method of levelling the axis of a large instrument, is by reflection, by the aid of a bafon of pure quicksilver, as we have already intimated; and the pole-star, being slow in its apparent motion, particularly at the time of its greatest elongation, is the most proper object by which to make the adjustment in question; for when the axis is level, and the star is made to cover any one of the spider's lines, its image reflected from the surface of the mercury will cover the same line, pro-vided the depression of the telescope is effected instantane-ously; and if this is not the case, the proper screws must be used for effecting this purpose without any reversion of the axis; for by this experiment, the line of light of the telecope is proved to have a motion truly vertical, which is what the horizontal position of the axis is intended to produce. Hence, if the exact coincidence of the places of the star and of its reflected image takes place in an instrument both before and after the reversion of its axis, this is a proof that both the pivots and Y are respectively similar. This method of adjusting the axis of the large transit-instrument at Greenwich has been lately adopted, after a trial had been made by the astronomer-royal, of the application of a plum-bl ine, suspended in a detached plate from a point of considerable elevation.

3. **To produce distinct Vision.**—Before the subse-quent adjustments can be made, it is necessary that the telescope should be put into a state of perfect vision; viz. that the object fixed upon should be seen well defined. This may be accom-plished by sliding either the object-glasses or the eye-piece within the tube, till the desired effect is produced; but when wires, hairs, or lines of any kind are made full in the common focus of these glasses, a motion given to the eye-piece will make those lines disappear, and a motion given to the object-glasses is in danger of deranging its best position; therefore, when a meridian mark is necessarily at so short a distance, that the same adjustment of the eye-piece will not suit it that has been made for a celestial object, by which the parallel lines have been fixed in the focus, an auxiliary object-glasses, or glasses of long focus to be added to the proper object-glasses, is provided to remedy these inconveniences, whenever the meridian mark is the object viewed. The method of de-termining the focus of such additional glasses, as shall shorten the compound focus of the object-glasses agreeably to what is requisite for a given distance, is explained under our article Telescope.

4. **To put the Wires, Hairs, or Spider's Lines perpendicular to the Axis.**—The parallel lines in the eye-piece of the telescope are usually attached to a circular piece of brass that turns right within the interior end of the tube, and if, when the telescope changes its elevation, a point in the meridian, or other mark, travels along one of these lines, so as to be bi-sected by it through the whole field of view, the said line will be perpendicular to the axis of motion; or if a long plum-bl ine be suspended at a distance, and a vertical line in the eye-piece is found to coincide with it while the telescope alters its angle of elevation, this will not only be a proof of the same thing, but will moreover shew that the axis is level; and when this is not the case, the piece holding the lines must be turned till they are found by trial to be truly verti-cal. The similarity of the intervals between the lines, and
also the angle measured by each, may be ascertained by a
graduated staff, and the tables which we published under
TELESCOPE.
5. To make the Line of Collimation perpendicular to the Axis.
—After having adjusted for distinct vision to some distant
known object, make the middle line in the eye-piece bisect
some well-defined point in it, and, having reversed the ends
of the axis, observe if the same line again bisects the same
point exactly; if it does, the line of collimation is right;
but if not, the error may arise either from the situation of
the point observed, or of the centre of the object-glass, as they
respectively regard the vertical line in the eye-piece; that is,
one or other of those lines may deviate a little from a true
perpendicular to the line of the axis of motion, or both may
be erroneous in their respective degrees; therefore, when
reversion has taken place, bring the vertical line one half way
towards coincidence with the observed point, by the hori-
izontal screw at the end of the axis, which alters the azimuth,
and the other half by the side-screws of the eye-piece, which
move the plate of the parallel lines, releasing one screw and
tightening the other, so as to leave the said plate half; then
reverse again, and repeat the operation, till the same point is
bisected in both positions of the axis.
6. To illuminate the Wire, Hairs, or Spider's Lines.—Before
an observation of a star or planet can be taken, the parallel
lines must be rendered visible to the eye of the observer, and
the quantity of light to be admitted will depend on the magni-
tude of the body to be observed. A lantern containing a lamp
must be fixed opposite that end of the axis which has its
aperture closed by a lens, and so much of the light must be
excluded as is superfluous for the observation; for when a
small star is the object, much light will render it invisible,
and yet it is necessary to have light enough to render the
parallel lines visible; hence observations on very small stars
require management of the quantity, and sometimes of the
quality too of the external light; on which account prisms of different coloured glasses have been interposed be-
tween the lens and the end of the axis, with sliding mor-
tions, to produce various modifications in the illumination,
according to the exigencies of the moment.
7. To adjust the horizontal Wire or Hair for taking Altitu-
des.—When the altitude of an object is to be accurately
taken, bring the bubble of the double vernier to the middle
of the level, and turn the telescope on its axis of motion,
till vernier 1 has its zero at 0 in the circle, or at 90°, if the
circle is graduated for zenith distances, as is mostly the case;
then notice what distant point is cut by the horizontal
wire; reverse then the axis, and bisect the same point again,
and in this situation see what quantity is read by the fame
vernier; or, which will be still better, half the sum of the
readings of both verniers 1 and 2 may be taken at both times,
and the difference of the two average readings may be con-
siderable; then one half of this difference, + or —, is the
real error of each observation, accordingly as the axis is
situated in position; and if this error is not obviated by a
proper adjustment, it must be allowed for in the reading of
every observation. But this error may be owing partly to
the unadjudged state of the vernier level, and partly to the
situation which the horizontal wire occupies in the eye-piece;
therefore the screws which elevate and depress the hori-
zontal wire, which, however, are not in all instruments, may
correct one half of the error, and the errors of the vernier
level the other, in each reversed position till the error dis-
appears; i.e. till there is no difference perceived in alti-
tudes of the same object taken in reversed positions of the axis
of the telescope’s motion. But it is usual with astronomers,
who take altitudes in reversed positions of a circle, to ascer-
tain the error arising from want of true collimation in alti-
tude, from a repetition of observations, and to apply it to
each observation as a correction, rather than attempt an
exact adjustment in this respect, when the error is inconsider-
able.
8. To make the Line of Collimation move in the Plane of the
Meridian.—In order to fix a transit-instrument well in the
meridian of any given place, it is necessary that the pole-
star be exposed to its view; for as the polar point is situated
in the centre of its diurnal circle, this circle must be bisected
by the middle wire, or spider’s line, that passes through the
zenith, before it will move in the plane of the true meridian.
Formerly it was usual to place the instrument, by double
altitudes of the sun, or by a knowledge of the solar time
obtained by observation of the altitude on a given day, nearly
in the meridian of the place, and then to observe which of
the two semicircles, to the right and left of the approxi-
mate meridian line, were passed through in the shorter time,
by means of taking both the upper and lower tranflets of
the pole-star successively; after which an allowance was
made for the deviation from the meridian, and the obser-
vations were repeated till both semicircles were performed
in the same time. But by this method of finding the centre
of the circle surrounding the pole, the accuracy of the
result depended on the rate of the clock that was used.
during the whole time that the successive observations
were employed; consequently some uncertainty remained as to
the comparative times intervening between the successive
tranflets, and the true polar point was, therefore, not easily
ascertained: but this difficulty has recently been obviated,
by fixing on two stars nearly at opposite fides of the circle,
so that their difference of right ascension may be very nearly
12°; for, when the two semicircles are alike, the time that
elapses between the superior tranflet of one, and the inferior
one of the other, will not be altered by a change of situation;
the difference of the times will remain the same, whichever
of the two stars makes the upper tranflet; but if the semi-
circles are unequal, the intervals of time will differ accord-
ingly; so that if one star precede the other two minutes at
its upper tranflet, and only one at its lower, half of this
quantity will be the time corresponding to the deviation in
position from the true meridian, which may be rectified by
repeated observations of the short intervals, according to
which the two stars follow one another, in tranfleting first
above and then below the pole respectivly; and all that
the clock has to do, according to this method, is to count the
seconds in each of those short intervals. When an in-
strument that is adjusted to have its line of collimation pafs
through the zenith by means of the horizontal position of
its axis of motion, is thus made to bisect a polar circle, it
will also pafs through the pole, and will consequently move
in the plane of the true meridian of the place. Various
other methods of placing a common transit-instrument truly
in the meridian have been recommended, but this is not
only the easiest, but the best; and if the right ascensions of
Dr. Maskelyne’s or Mr. Pond’s stars come right, when ob-
served after the final verification, it may safely be con-
cluded that the position of the instrument is in the true
meridian.
When a transit-instrument is well constructed, and
properly adjusted in all respects, it is one of the most useful
instruments in astronomy, for without it the right ascensions
of the heavenly bodies would not be accurately taken by
direct observation, neither could the time, either solar or
fisheidal, be ascertained with that degree of precision which
may
may be done by its aid. Indeed a perfect transit-instrument and a good sidereal clock is the indispensable furniture of every fixed observatory, and as companions, that mutually assist each other, they ought never to be separated.

We might now proceed to illustrate the use of the transit-instrument by a few examples in practice, if we had not anticipated this part of our article under the heads Ascension and Chronometer; in one or other of which articles we have explained both the method of determining the right ascension of any body, and also of ascertaining, without much calculation, the rate of a chronometer or astronomical clock. See the respective problems under Chronometer.

The transit-instruments which we have above described are necessarily expensive, even in the portable form; and encouragement has been held out, by the Adelphi Society, for further improvements in the portable kind, so that they may become more common. And the frequent enquiries that have been made for a cheap portable instrument, induced Sir H. C. Englefield, bart. to contrive a very simple one, which was first made by Mr. Thomas Jones, mathematician-instrument-maker in London, and is now sold at his house at Charing-Cross. A description of this instrument, called a side transit-instrument, written by the contriver, is sold along with it, from which it appears, that it is not to be considered an original instrument, but an improvement on an old transit-instrument formerly belonging to Mr. Aubert, and purchased at his sale by the late Mr. W. Walker. We propose to copy the description nearly as it has been published. "It is well known," says the ingenious author, "that the transit-instrument, in its usual form, is liable to great injuries from blows, or other violence affecting the perpendicularity of the telescope to the axis; that it necessarily takes up much room in package; that, unless of a very small size, it is not easily fixed in a window or other opening in a common dwelling-house; and that it is quite impossible, except in fixed observations, to make it sweep the entire area between the southern and northern points of the horizon. In windy weather its use is also very difficult and inconvenient. In the instrument now offered, all these inconveniences are avoided. It may be fixed almost anywhere; in many places it may be made to describe the entire circumference of the meridian; the observer is put to no difficulties by change of place, as he always looks directly along the axis; it is packed in one-eighth of the space required to pack a common transit-instrument of the same real size; its weight is not more than a fifth of the other; from its simplicity it will be afforded at half the price; and its verifications and adjustments are easy and simple. It has also another advantage, that the mark by which it is placed in the meridian may be either in the zenith or at right angles to it; or, if convenient, two marks may be erected, one to the south or north, the other east or west; and if so used, it will be always seen, by inspection only, whether the mirror needs adjustment or not. In many confusion situations, such as occur in cities, the power of having a mark at right angles to the meridian may be eminently useful. The general description of the instrument is as follows: The telescope is included in a brass cylinder, having a small cylinder at each end, turned true in the usual manner, and resting in Ys of the usual construction. These smaller cylinders are both pierced. In one is the eye-piece of the telescope, with its wires, &c. The other is open, for the purpose of seeing through it, if necessary, the eastern or western mark; and for adjusting by direct vision the line of collimation of the instrument. It also serves for the illumination of the wires. The object-glasses of the telescope is placed so near this cylinder, as only to allow room for an unsilvered plate glass mirror to be placed before it at an angle of 45°. It is obvious, that as the telescope revolves on its axis in the Ys, every celestial object at right angles to it may successively be seen by reflection from the mirror; and of course, if the axis be placed due east and west, the transits of all celestial bodies over the meridian will be observed with the utmost accuracy and convenience. The aperture in the axis beyond the object-glasses is not only of use for the adjustment of the instrument to an eastern or western mark, or for the illumination of the wires, but affords a means of seeing the mark at the same time with the body whose meridian passage is to be observed, and thereby being certain of the true adjustments of the instrument at the very moment of observation; which is impossible in any other construction of the transit-instrument, and seems to be a very material advantage. I am convinced that transit-instruments of the largest size might, with very great advantage, be constructed on this principle. It is true, that where very much light is wanted, as in observations of stars in the day-time, the loss by reflection will be some disadvantage; but the loss of light from an unsilvered mirror is very small; and the convenient and simple form of the instrument; by its lightness less subject to flexure: by its position much less liable to errors from unequal change of temperature; and extremely commodious in its use; present advantages of a very important nature, and such as might introduce it into the most extensive observatories with profit. The advantages may perhaps be even greater in small transit-instruments. When in the present construction the telescope is long, as its whole weight rests on the most disadvantageous point of the axis, this is of necessity made very large towards its centre, to avoid flexure; and the whole instrument is so heavy, that an additional apparatus of counterpoise must be added to the pivots, lest they should wear away the Ys, and the reverting the instrument becomes a work of some difficulty and danger: whereas in the construction proposed, the small comparative weight of the object-glasses and eye-glasses lies very near the pivots, and the middle of the tube is the lightest part of it. The operation of reverting is performed with great ease, both from the form and lightness of the instrument; and it may be added, that the comparative facility of observations is of greater advantage the larger the instrument. Having so far explained the general principles of this transit-telecope, which was executed very much to my satisfaction by Mr. Thomas Jones, it will be proper to describe more particularly its construction. The transit-stand is represented by either the upper or lower part of fig. 1. "The first is constructed for being placed or fixed on a vertical surface; the second for a horizontal one, A B; in both are the Ys, or supports for receiving the axis of the telescope. The end A, intended to be always next the eye, is furnished with both the horizontal and vertical adjustments, such as are usual to transit-instruments. The telescope's axis is represented by the lower part of fig. 9. The eye-end being at C, the object-end at D turns round in the Ys; A B upon its cylinders n n: the screw-head r, at the object-end D, is for the purpose of adjusting the parallel glasses. The telescope is adjusted to direct vision by means of the head or knob at P. The wires of the telescope are adjusted by means of the four capstan head-screws at the eye-end t t. The circle R is divided on the surface next to the eye. The eye-tube has a sliding motion for viewing the wires distinctly: the short piece of tube at the object-end turns round on the telescope's tube, and serves as a cover for the object-glasses. The upper part of fig. 9. is the riding level, and is placed upon the axis in the Ys, and ad-
TRANSIT-INSTRUMENT.

..julted by means of the screw S. *Fig. 8.* represents the
stand, telescope, and level, displacing the position in which
they are used; *fig. 12.* for placing the transit in the meri-
dian. Of the verifications of this instrument, two are com-
mon to every construction; one only is peculiar to this.
The line of collimation is adjusted by looking direct at some
distant small point (the cover being turned over the lateral
aperture), and turning the telescope gradually round on its
axis, and moving the screw of the wires, if necessary, till
the spot is in every position covered by the interference
of the wires. The axis is brought to a horizontal position,
and the level is in the same mode adjusted by reversing the
telescope or level, and correcting half the error by the level-
screw, and half by the vertical screw of the \( Y \), in the usual
mode. The verification peculiar to this instrument is that
of the mirror, and perhaps the best mode of doing this is
by the pole-star, when nearly in an easterly or westerly position
from the pole; its motion in azimuth is then so slow as to
give ample time for the adjustment. Bring the pole-star to
the vertical wire (the line of collimation having been pre-
viously adjusted); then reverse the telescope in its \( Y \); and
if the star is still on the wire, the mirror is in adjustment;
if not correct half the difference by the mirror-screw, and
half by the horizontal of the \( Y \), till the error vanishes.
This adjustment may also be performed, by setting up a
board with two parallel perpendicular lines drawn on it,
distant from each other exactly the space between the posi-
tions of the mirror when the telescope is reversed in its \( Y \).
If the vertical wire be brought to cover one of the marks,
and on being reversed, the wire covers the other mark, it is
right: if not, the error must be made to vanish by cor-
recting it half and half, as before directed, for the adjus-
tment by the pole-star. The following method of placing
the instrument correctly in the meridian, is equal if not
superior to any that has yet been devised. Let \( Z \) (*fig. 12.*)
be the zenith; \( P \), the pole; \( H \), the horizon; \( Z \ P \), the
meridian circle; \( Z \ K \), a circle of altitude, distant from
the meridian by a small quantity \( I K \) (suppose a degree);
the diurnal circle of the pole-star, whose radius is \( 1^\circ 45' \)
and let the altitude of the pole be \( 51^\circ 30' \). Then
when the pole-star is on the northern meridian, its al-
titude \( 3 \) will be \( 49^\circ 45' \), and its zenith distance \( Z \) \( 3 \) \( 20^\circ 15' \);
and \( A C \) will be a part of the diurnal arc of a star which
has \( 40^\circ 30' \), and \( N \) meridian altitude \( 5\). Now
suppose the transit-instrument, whose axis is accurately le-
velled, and of course in the meridian at \( Z \), to point at the
horizon to \( K \) (it is obvious from its construction the tele-
scope’s axis will be at right angles to the meridian line) in-
stead of \( I \), the true meridian; then at \( 3 \) (the altitude of the
pole-star under the pole) it will point at \( B \), and the arc
of \( 3 \) \( B \) will be to \( I \), as the cosine of the altitude \( 3 \) \( I \) to
radius; but \( 3 \) \( B \), measured on the diurnal circle of the
pole-star, will be the sine of its distance from the meridian
to the radius \( P \) or \( P \); and, as in small arcs, the arc of
a great circle, or of a small circle, or their sines, are nearly
coincident, we shall have very nearly, as \( Z \) \( 3 \) (the zenith
distance) is to \( P \) (the polar distance), so is the value of
3 \( B \), in degrees of the pole-star’s circle, to its value in degrees
of a circle whose radius is \( Z \). And as the radius \( Z \) \( 3 \) is
to \( P \) nearly as \( 23 \) to \( 1 \), the error of the transit-telescope
at the altitude \( 3 \) \( I \), will be measured by a scale
(if it may be so called) 23 times as great as itself. Now,
let there be another star \( A \), whose northern meridian alti-
ude is as small as it conveniently can be, for example \( 5\),
whose polar distance is, therefore, \( 46^\circ 30' \), and whose
right ascension is the same as that of the polar star; then, if
the transit-telescope be in the meridian, both these stars
will pass through it at the same time; but if it be out of
the meridian by the quantity \( I K \), the star \( A \) will pass
through it when it comes to \( C \), but the polar star not till it
comes to \( B \), when the \( A \) has got to \( D \), in its diurnal
circle. The value of \( A C \) being therefore found, by multi-
plying \( I K \) by the cosine of its altitude \( A I \), that value,
being reduced to the angular value from the radius \( P \ A \),
will give the time of the \( A \) passing through the transit-
telecope, after the time of its passing the meridian; and
the same operation being performed for the pole-star as
before directed, the difference of these times will be the
error in time of the transits, answering to the given devia-
tion \( I K \) of the transit-telescope. And tables having been
previously constructed for such stars as shall be thought
convenient, the transit-telescope may, in a very short space
of time, be set to the meridian, with a degree of precision
unattainable by any other method. If the \( A \) precedes the
pole-star in its passage under the pole, no tables are re-
quiiite, nor any thing necessary to be known but the exact
difference of the right ascension between the two stars; for
having observed the transit of the \( A \), (the instrument
being previously brought near the meridian, suppose half a
degree,) then elevate the telescope to the pole-star, by
moving the horizontal adjustment of the axis; keep the
pole-star on the middle wire, till the due interval of time
between their transit is elapsed; the instrument will then be
extremely near its true position; and, by repeating the ob-
servation once more, will be brought to a perfect exact-
ness. Or, if another star, following the pole-star in its passage,
be observed on the same evening, if the times elapsed between
their transits are equal to the tabular difference or their right
ascensions, which will probably be the case, the accuracy of
the first placing the instrument will be immediately ac-
quired. Other stars near the pole may be made use of in
the same manner as is here described for the pole-star, but
with proportionally less advantage as the polar distance is
increased. It is also obvious from the figure, that the
transit of the pole-star above the pole may be also used,
and that with nearly, though not quite, the advantage of the
transit below the pole. The same method may also be
applied with equal ease, if the second star \( A \) passes the
southern meridian instead of the northern.

"The flow of the pole-star’s motion, though it renders
its transit uncertain to a few seconds, cannot materially affect
the accuracy of this method, as an error of ten seconds in
time, in the estimation of its passage, which is certainly
more than can be committed, would not cause an error of
a third of a second in time of the passage of stars near the
equator."
that had will and evenio or, dicam • fen • ct • ne-and, I nil paper J pine tin, Gratified illud which ervations venly and, at cenfion liberty that quefion deseription subject, and introducing with by Mr. S. Groombridge at Blackheath, and which has proved itself to be an instrument of the first clas ; and we there flated a report, that a large one was in contemplation for Greenwich, which we faid we might possibly have occasion to defcribe. That instrument has been finifhed by Troughton in his bell manner, and though the plan of the confruction is unique, and the mode of uing it novel, its application to the purpofes for which it was intended answers the moll fanguine expectation of the maker, and in the hands of the prefent alronomer-royal, affords the means of making more accurate and at the fame time more numerous obervations in a given time, than ever were effected by any other instrument. Though this instrument has a long axis paffing through a solid pier of mafonry, and is capable of being ufed for tranfits, it has lithero been principally ufed for determining polar diilances, by actual measurement from the polar point; according to which mode, the uncertainty in the refults, which commonly arises from variable refraction in ordinary measurements, is almost entirely obviated, and a repetition of any feries of obervations may be made on any part of the circle ad libitum, and with any number of readings to the number of fix at the fame time; fo that a fingle obervation is made with as much accuracy, as can be obtained from an average of several fucceffive obervations taken with a repeating-circle of the fame diimensions; and yet there is the power of re- pating any obervation in various positions. Mr. Pond has already published one volume of obervations taken with this instrument, which completely verifies our affertions, and in this firft volume he has given a plan and fection of this instrument, the circle of which is fix feet two inches in diameter; but as Mr. Troughton intends to give a complete defcription thereof himfelf, as a paper fuitable for the Philosophical Tranfactions, which, to be published therein, must be an original communication, Mr. Pond was not at liberty to defcribe the drawing which he has given as a frontifpiece to his firft volume; and as the defcription in quefion is not yet finifhed, we are in the fame predicament with the alronomer-royal, and muft confequently for the prefent forego the pleafure we had promifed ourfelves, of introducing this magnificent instrument to the notice of the public.

TRANSITION, in Myft., is nearly fynonimous with modulation; it implies little more, in its technical ufe, than a change; and, in general, a change of key, from major to minor, or the contrary; or, indeed, from any one genus or key to another. Luckily no laws were laid down by our forefathers for tranfition, as for modulation, which we fo long feared to violate.

TRANSITION, in Rhetoric, a kind of connection in difcourfe, by which the feveral different parts and members of it are joined, fo as to confitute one regular whole: or, as Volfius defines it, is a form of speech, by which the speaker, in a few words, tells his hearers both what he has faid already, and what he next designs to fay. Sometimes, however, in paffing from one thing to another, a general hint of it is thought fufficient to prepare the hearers, without particular fpecifying what has been faid, or is next to follow.

Some place tranfition in the number of figures; others, with Quineflian, exclude it from that rank.

F. de Colonia makes two kinds of tranfitions, the one perfect, and the other imperfect.

TRANSITION, Perfect, is in that in which we briefly intimate what is faid, and what remains to be faid. As, Now that we have fpoken of war, there remains something to be fpoken of peace. Satis multa de turpitudine: dicam deinceps, quod proponis, de periculo. Uni epiplae respondit: veniam ad alteram. Sed hoc volvere; illud recons: Cafforem me confilio interfatum.

TRANSITION, Imperfect, is in that which only one of these is exprefsed. As, Let us now confider the confequences of, &c. Posfularer hie locus, ut discremer de — sed fumit fit; neque enim praecuramis jam loqui poftulum; et hic fe lacrymis defendi negat.

TRANSITION Rocks, in Geology, a name introduced by Werner to difignify thofe rocks which, on account of their containing few organic remains, and lying immediately over other rocks which contain none, are fuppofed by him to have been formed when the world was paffing from an uninhabitable to a habitable flate. According to the fame geologist, tranfition rocks are of more recent formation than the lower or primary rocks, and older than the flate or flratiéed rocks, and are intermediate between both, being partly of mechanical and partly of chemical formation. The rocks which are enumerated in this clas by Werner, are tranfition lime-flone, tranfition trap, greywacke, and flinty flate. It is now, however, admitted, that the dif- tinction made between tranfition rocks and the lower ftrati- fied or flate rocks, has little or no foundation in nature, as these rocks are not unfrequently obferved to alternate with each other. (See Rocks.) Nor is the abfence of organic remains in the lower rocks, called primary, a decisive proof that they were formed preceiently to the eftinction of organic life upon our planet; for in a feries of ftratiéed rocks containing organic remains, we fometimes meet with other beds interpofed, in which no vegeflage whatever of fuch remains can be traced. Hence we may infer, that the proccfs by which the latter was confolidated, has destroyed the organic matter which they may have once contained. The abfence of organic remains in flatice beds that have a cryftalline granitic ftucture, is, we conceive, owing to the pecu- liar mode by which they were cryftallized, as fuch beds fometimes repofe on other beds abounding in marine shells. Nor can we be certain, that the lowest rocks of granite were formed before the eftinction of animal life on our planet. The more extensively modern geologists have carried their obervations, the more numerous are the infances found of marine shells or vegetables occurring in alpine districts formerly regarded as primary; and if granitic rocks, where- ever they occur, are invariably deftitute of extraneous foills, we must attribute it to the peculiar mode of their formation, rather than to their priority of age.
The only circumstance which makes it probable, that the rocks classified as transition rocks, are the lowest in which the remains of organic substances have ever been imbedded, is, that the fossils found in such rocks belong almost exclusively to different species of zoophytes and shell-fish, which may be regarded as the first or lowest links in the chain of animated beings. It is only in the upper strata that we meet with remains of animals possessing the faculties of vision and locomotion, and a more complex organization. See Rocks, Strata, and Systems of Geology.

TRANSITIVE, in Grammar, an epithet given to such verbs as signify an action which passes from the subject that does it, to, or upon, another subject which receives it. Under the head of verbs transitive, come what we usually call verbs active and passive: other verbs, whose action does not pass out of themselves, are called neutrals, and by some grammarians intransitives.

In the Hebrew, the verb הָמָה, hajab, in the Greek ὑπάρχει, and in the Latin fumus, are verbs purely neutral, or intransitive; or, as the Latin and Greek grammarians more usually express it, verbs substantive, signifying the mere existence of the thing, without the active or transitive conjugations.

TRANSITORY, in Common Law, stands opposite to local. See Action.

TRANSITORY Choice. See Choice.

TRANSITORY Tripos. See Trespass.

TRANSLATION, formed of trans, beyond, and Latin, of ferre, to carry; the act of transferring or removing a thing from one place to another.

We say, the translation of a bishop's see, a council, a seat of justice, a parliament; the translation of the relics of a saint, the translation of the empire, &c.

The translations of bishops from one see to another are prohibited by the council of Nice, which declares them null, and appoints the translated bishop to return to his former church. The council of Sardica excludes translated bishops from communion. It has been observed, that no bishop was ever removed from a greater church to a lesser; and that those who thus quitted their churches, only did it out of ambition or avarice.

This discipline was generally observed for nine hundred years; and the first instance of any translation of note, was that of pope Formosus, who was bishop of Porto. One of his successors took hold of this pretence to have him dug out of his grave; and a council, held soon after, forbade this translation to be made a precedent.

However, the same church allowed of some legitimate causes of translations; as the apparent advantage of the church; under which pretence, translations soon became so frequent, that for 500 or 600 years last past, they have been esteemed a kind of common law.

The translation of a religious from one order to another cannot be effected without the consent of the pope; it is added, that it is not allowed to translate from a secular rule to a clerical one.

TRANSLATION is also used for the version of a book or writing out of one language into another. See Version.

TRANSMARINE, TRANSMARINUS, something that comes from, or belongs to, the parts beyond sea.

TRANSMARISCA, in Ancient Geography, a town of Lower or Second Macia, upon the route from Viminacium to Nicomedia; between Apollonia and Candiaiana. Anton. Itin.

TRANSMIGRATION, the removal or translation of a whole people into another country, by the power of a conqueror. See Migration.

TRANSMIGRATION is particularly used for the passage of a soul out of one body into another; the same with what we otherwise call metempsychosis; which see.

The Siamese, F. Tachard informs us, from a belief of the transmigration of souls into other bodies, forbear killing any beasts; lest, by that means, they should dispossess the souls of their deceased relations.

TRANSMIGRATION, Ionic. See Ionic.

TRANSMISSION, in Optics, &c., denotes the property of a transparent body, by which it suffers the rays of light to pass through its substance; in which sense, the word stands opposed to reflection.

Transmifion is also frequently used in the same sense with refraction, because most bodies, in transmitting the rays, do also refract them.

For the cause of transmission, or the reason why some bodies transmit, and others reflect, the rays, see Transparency and Opacity.

The rays of light, sir Isaac Newton observes, are subject to fits of easy transmission and reflection. See Light and Reflection.

TRANSMUTATION, the act of transforming or changing one nature into another.

The term is chiefly used in chemistry and medicine. It has been greatly questioned, whether the transmutation of silver into gold, and of tin into silver, so much sought by the chemists, be possible or not.

The purest and fubtilest parts of the food are transmuted or assimilated into the proper substance of the body. See Nutrition.

Nature, sir Isaac Newton observes, seems delighted with transmutations: he goes on to enumerate several kinds of natural transmutations; gros bodies and light, he fupposes, may be mutually transmuted into each other; and adds, that all bodies receive their active force from the particles of light which enter their composition.

For all fixed bodies, when well heated, emit light as long as they continue so; and, again, light intermingles itself and inheres in bodies as often as its rays fall on the solid particles of those bodies.

Again, water, which is a fluid, volatile, tallowy falt, is by heat transmuted into vapour, which is a kind of air; and by cold into ice, which is a cold, transparent, brittle fline, easily disfolvable; and this fline is convertible again into water by heat, as vapour is by cold.

Earth by heat becomes fire, and by cold is turned into earth again: dense bodies are rarefied into various kinds of air, and that air reverts into gros bodies.

Quicksilver sometimes puts on the form of a fluid metal; sometimes it appears in the shape of a pellucid, fragile falt, called sublimate; sometimes of a pellucid, volatile, white, tallowy earth, called mercurius dulis: by distillation, it becomes vapour; and by agitation in vacuo, it shines like fire, &c.

All bodies, beafts, fishes, insects, plants, &c., with all their various parts, grow and increase out of water, and aqueous and saline tinctures; and, by putrefaction, all of them revert into water, or an aqueous liquor, again.

Farther, water exposed awhile to the open air, puts on a tincture, which, in process of time, has a fement and a spirit; and, before putrefaction, yields nourishment both for animals and vegetables.

TRANSMUTATION, in Alchemy, denotes the act of changing or exalting imperfect metals into gold or silver. This is also called the grand operation; and, they fay, it is to be effected with the philosopher's stone.

The trick of transmuting cinna-bar into silver is thus; the
the cinnabar, being bruised grossly, is stratified in a crucible with granulated silver, and the crucible placed in a great fire; and, after a due time for calcination, taken off; then the matter being poured out, is found to be cinnabar turned into real silver, though the silver grains appear in the fame number and form as when they were put into the crucible; but the mifchief is, coming to handle the grains of silver, you find them nothing but light friable bladders, which will crumble to pieces between the fingers.

Mr. Boyle, in his Sceptical Chemist, tells us, that two friends of his did, by urging mercury in a skillfully managed fire, turn it, almost weight for weight, into water; but he does not say what was the specific gravity of the produced water, nor of the remaining untransmuted mafs of mercury. He likewise affures us, that rain-water, being distilled and re-distilled, by a friend of his, nearly two hundred times, did, after distillation, leave at the bottom of the glass body, a considerable quantity of a white earth; and that more plentifully in the latter distillations, than the former.

This he believed to be a certain quantity of water actually transmuted into earth, adding, that it was above twice as heavy specifically as common water, and of so fixed a nature, that it lay a considerable time, in a red-hot crucible, without losing any thing of its weight, or even emitting any smoke.

For the transmutation of iron into copper, see COPPER AND VITRIOL.

Transmutation, in Geometry, denotes the reduction or change of one figure or body into another of the same area or solidity, but of a different form; as a triangle into a square, a pyramid into a parallelepiped, &c.

Transmutation, in the Higher Geometry, is used for the converting of a figure into another of the same kind and order, whose respective parts rife to the same dimensions in an equation, admit the same tangents, &c.

If a rectilinear figure be to be transmuted into another, it is sufficient that the intersections of the lines which compose it be transferred, and lines drawn through the face in the new figure.

If the figure to be transmuted be curvilinear, the points, tangents, and other right lines, by means of which the curved line is to be defined, must be transferred.

Transmutation of Colours. The change of colour of a decoction of the nephritic wood, according to the different lights it was viewed in, long perplexed those who attempted to account for it; but Wolfsius has carried the experiments on this decoction much farther, and found a way of giving it its colours again, after taking them wholly away. If this decoction he held between the eye and the light, it appears of a blue colour; but if the eye be placed between it and the light, it appears then of a yellowish or a red colour. If a few drops of oil of vitriol be dropped into it, it will appear of a gold yellow in whatever light it is viewed; but if too much of this oil be added, the whole becomes foul and offensive; and if a few drops do not produce the effect, it is a sign that the decoction is too strong, and that it must be diluted with water. See Colours.

Oil of vitriol has the same effect upon many other decoctions of the woods, particularly on that of Brazil wood, which is of a fine red, but immediately becomes yellow on dropping a small quantity of this acid into it. And as in the other instance, so in this, it is necessary to the success of the experiment, that the tincture be not over strong. A few drops of oil of tartar added to this yellow liquor turn it red again as at first; and if more oil of tartar be added, the colour becomes blueish, with a tinge of red, much stronger than the colour of the nephritic wood at first, when held between the eye and the light. In all experiments of this kind, the weakness of the tincture produces the greatest beauty; and therefore it is best, instead of making a decoc- tion, to make only a cold infusion, by putting a small quantity of the chips of the wood into water, and letting this stand cold for some time.

A tincture of red roses, made with common water and oil of vitriol, is well known to be of a very beautiful red colour, yet when the water has stood ever so long on the roses alone, it has scarcely any colour; if it be strained off in this colourless state, and the oil of vitriol then added, the red colour is produced as strongly as if this acid had been dropped into the water, while the roses were yet in it. When the liquor is of this fine red colour, a small quantity of oil of tartar makes it immediately green; and if more oil of vitriol be added to this green liquor, it becomes red again, but is muddy, and not so well coloured as before. If a few drops of a solution of corrosive sublimate be added to this, it does not at all change colour; and on adding more water, with salt of tartar dissolved in it, the liquor became red again, but of a very different red from what it was before in its muddy state, being now clear and deeper. When the tincture of roses has scarcely any colour, a small quantity of salt of tartar makes it green, but a large quantity makes it yellow. A few drops of oil of vitriol added to this yellow liquor, turned it to a pale red, and this could never be made green again by oil of tartar. Alum-water, added to a solution of salt of tartar, makes a white and opaque fluid, though they are both separately pellucid.

What is most observable in these experiments on the infusion of woods is, that oil of tartar, and a solution of salt of tartar in water, have a very different effect. Thus an infusion of Brazil wood is red, and on dropping into it a few drops of oil of vitriol, it becomes yellow. If oil of tartar be added to this liquor, it only makes it yet more yellow; but if a solution of salt of tartar in water be added to this, it makes it red again. Aet. Erudit. Ann. 1718. p. 322.

The solution of verdigris, which is green, becomes colours by the action of spirit of nitre or spirit of vitriol, and by the affusion of the oil of tartar it becomes green again. The spirit of sal ammoniac gives it a purple colour, and oil of vitriol makes it pellucid. The solution of gall with vitriol gives black, the affusion of oil of vitriol destroys the blackness, and it becomes pellucid as before.

M. Muschenbroeck thought it to be universally true, that yellow vegetables, dissolved in spirit of wine, gave yellow tinctures, which are either not at all, or very little changed by acid, alkaline, or any other salts; but he thought there were some exceptions, and says, that when oil of vitriol is put to yellow paint, called orzéon, it becomes of a beautiful blue, which is destroyed by water or any salt. A small quantity of an astringent substance, with iron, gives a black colour; a greater quantity of the astringent produces blue, more of it makes a violet, and more still produces purple.

There are some tinctures, the colours of which depend upon the external air: such is the red tincture made of Canarian lichen, called orpédile, and water, a diluted spirit of wine, with lime and an urchin salt. For, if this tincture be put into a glass tube, hermetically sealed, in a few days it becomes colourless; and when the tube is opened the colour returns. The abbé Nollet made a variety of experiments with this tincture. To the same clafs may be referred the sympathetic inks.

Colours may be produced in liquors which originally have no colour: thus, spirit of wine with red roses, upon which, whilst it is yet white, any tincture acid spirit is poured, in to small a quantity that the acid can hardly be perceived, produc-
duces a florid red. Many other red flowers hardly give any colour to spirit of wine in a short time; yet give a red colour by the addition of any of the acids. A solution of mercury and oil of tartar gives orange; a solution of sublimate and lime-water produces yellow. The tincture of red roses with oil of tartar per deliquium, or with spirit of sal ammoniac, gives green. In like manner, the tincture of many red flowers it changes into green by an alkali. The tincture of red roses and spirit of wine gives blue. The solution of copper and spirit of sal ammoniac gives purple. The solution of sublimate and spirit of sal ammoniac gives white. The solution of saccharum saturni and that of vitriol, also the tincture of red roses, or many other red flowers, and the solution of copperas in water, and likewise the solution of galls and copperas, produce black. The following table exhibits the colours arising from different mixtures.

<table>
<thead>
<tr>
<th>Colour of Tincture</th>
<th>Producing Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>Tincture of red roses</td>
</tr>
<tr>
<td>Red</td>
<td>Tincture of crocus</td>
</tr>
<tr>
<td>Green</td>
<td>Tincture of violets</td>
</tr>
<tr>
<td>Brown</td>
<td>Spirit of sulphur</td>
</tr>
<tr>
<td>Red</td>
<td>Tincture of red roses</td>
</tr>
<tr>
<td>Brown</td>
<td>Spirit of hartborn</td>
</tr>
<tr>
<td>Blue</td>
<td>Tincture of violet</td>
</tr>
<tr>
<td>Green</td>
<td>Solution of copper</td>
</tr>
<tr>
<td>Blue</td>
<td>Solution of Hungarian vitriol</td>
</tr>
<tr>
<td>Blue</td>
<td>Solution of cyanus</td>
</tr>
<tr>
<td>White</td>
<td>Spirit of sal ammoniac</td>
</tr>
<tr>
<td>Blue</td>
<td>Solution of Hungarian vitriol</td>
</tr>
<tr>
<td>Brown</td>
<td>Lixivium</td>
</tr>
<tr>
<td>Blue</td>
<td>Solution of Hungarian vitriol</td>
</tr>
<tr>
<td>Red</td>
<td>Tincture of red roses</td>
</tr>
<tr>
<td>Blue</td>
<td>Tincture of cyanus</td>
</tr>
<tr>
<td>Green</td>
<td>Solution of copper</td>
</tr>
<tr>
<td>Violet</td>
<td>Tincture of diplacum, or iris, or any other flowers that give a violet colour in water</td>
</tr>
<tr>
<td>Yellow</td>
<td>Alum dissolved in water</td>
</tr>
</tbody>
</table>

Müchenbrock's Introd. ad Phil. Nat. tom. ii. p. 738, &c. The result of a variety of mixtures to produce colours, was recited before the Royal Society by Dr. Goddard in 1661, and may be seen in Birch's History, vol. i. p. 11.

Mr. Melville has made many observations on the transmutation of colours by means of the light of different burning bodies. Bodies of all the principal colours, viz. red, yellow, green, and blue, are very little altered, he observes, when they are seen by the light of burning spirits; but if salts be continually mixed with them, during the burning, different changes ensue. When sal ammoniac, potash, or alum, are infused, the colour of red bodies appears somewhat faded and dirty. Green and blue appear much the same as in candle-light, both being faint, and hardly distinguishable. White and yellow are hardly at all affected.

When nitre, or sea-feal, is plentifully mixed with the burning spirits, and the whole is fired about briskly, the brightest red bodies, seen by the light then emitted, are reduced to a dirty tawny brown, which seems to have nothing of redness in it. Green is transformed into another sort of brown, only distinguishable from the former by a certain inclination to a livid olive colour. When nitre is mixed with the spirits, one may still see some remains of greenish colour, unless it be poured in very plentifully. Dark blue is hardly to be known from black, except that it appears the deeper black of the two. Light blue is changed into a very light brown, of a peculiar kind. White assumes a livid yellowish cast; and yellow alone appears unaltered, and extremely luminous.

These experiments he made with different sorts of richly coloured bodies, as silks, cloths, and paints. Polished copper, which had contracted from the air a high flaming colour, was reduced, by the flame light, to the appearance of yellow brass. The faces and hands of the speculators appeared like those of a dead corpse; and other mixed colours, which had red or green in their composition, underwent the like changes.

Having placed a plateboard, with a circular hole in it, between his eye and the flame of the spirits, in order to diminish and circumcribe this object, he examined the constitution of those different lights with a prism, holding the refracting angle upwards; and found that, in the first case, viz. when sal ammoniac, alum, or potash fell into the spirits, rays of all kinds were emitted, but not in equal quantities, the yellow being much more copious than all the rest put together, and the red being more faint than the green and blue.

In the light of spirits mixed with nitre, or sea-feal, he could observe some blue, though exceedingly weak and diluted. With the latter the green was equally faint, but with the former pretty copious. But when either of these faults was used, he could hardly perceive any trace of red, especially when they were mixed, in great plenty, and the spirits constantly agitated. At every little intermission, indeed, the red rays would shew themselves very manifestly below the hole, and red bodies seen by that light refumed somewhat of their ordinary colour; and it was entertaining to observe how both would vanish again at once, when the faulting and flaring were renewed.

The proportion in which the bright yellow exceeded the other colours in this light, was still more extraordinary than in the former: insomuch that the hole, seen through the prism, appeared uniformly of that yellow, and as distinctly terminated as through a plane glass; except that there was adjoining to it, on the upper side, a very faint streak of green and blue. White bodies illuminated with it, appeared also through the prism perfectly well defined, both which, he says, are very surprizing phenomena to those who have been accustomed to the use of the prism in heterogeneous lights, where it never fails to throw confusion on the extremities of all visible objects.

Upon examining bubbles of soap and water in the same light, he could only observe luminous streaks, separated by dark ones, the green and blue being too weak to affect his eye. Edinb. Essays, vol. ii. p. 32.

Transmutation of Plants. See Seeds and Degeneration.

Transom, among Builders, the piece that is framed across a double light window.

Transom, among Mathematicians, denotes the vane of a crossett; or a wooden member fixed across it, with a square whereon it slides, &c.

Transoms, in a Ship, are beams and timbers extended across the stern-post of a ship, to fortify her after-part, and give it the figure most suitable to the service for which she is calculated. See Ship-building.

The general figure or curve given to the ship by the disposition of the arms of the transoms, which are gradually closer in proportion to their distance from the wing-transom downwards, in consequence of which it becomes extremely narrow from the counter towards the keel, is called the flight of the transoms. Although these pieces are extremely different in their figures, according to the extent of the angles formed...
TRANSPARENCY, transparence, in Physics, a quality in certain bodies, by which they give passage to the rays of light.

The transparence of natural bodies, as glafs, water, air, &c., have imputed to the great number and size of the pores or orifinces between the particles of those bodies: but this account is exceedingly defective; for the most solid and opaque body in nature, we know, contains a great deal more pores than it does matter; a great deal more, fully, than is necessary for the passage of so infinitely fine and subtle a body as light.

Arifotle, Descartes, &c., place transparence in the rectitude or straightness of the pores; by means of which, say they, the rays are enabled to make their way through without striking against the solid parts, and being refracted back again: but this account, in Isaac Newton's eyes, is imperfect; the quantity of pores, in all bodies, being sufficient to transmit all the rays that fall on them, however those pores be situated with respect to each other.

The cause, then, why all bodies are not transparent, must not be ascribed to their wanting rectilinear pores; but either to the unequal density of the parts, or to the pores being filled with some foreign matters, or to their being quite empty, by means of which the rays, in passing through, undergoing a great variety of reflections and refractions, are perpetually diverted this way and that, till, at length, falling on some of the solid parts of the body, they are extinguished and absorbed.

Thus cork, paper, wood, &c., are opaque; whereas glafs, diamonds, &c., are transparent: the reason is, that in the neighbourhood of parts equal in density, such as those of glafs, water, diamonds, &c., are with respect to each other, the refraction being equal on every side, no refraction or refraction enters; but the rays, which entered the first surface of the bodies, proceed, without interruption, quite through the body, those few only excepted which chance to meet with the solid parts: but in the neighbourhood of parts that differ much in density, such as the parts of wood and paper are, both in respect of themselves, and of the air, or the empty space in their pores; as the attraction will be very unequal, the refractions and refractions must be very great; and therefore the rays will not be able to make their way through such bodies, but will be perfectly deflected, and at last quite stopped. See OPAQUE.

TRANSPARENT, we think, would be as useful a term in music, as in painting. We know that visibility and audibility are objects of two different senses; but clearness, transparent, is a favourite excellence with musicians, in speaking of counterpoint; and in compositions of many different parts carrying on different directions, that clearness in their texture and arrangement, which enables the hearer to disentangle them, and to distinguih the several parts through each other, but particularly in vocal music, and to hear the principal melody through all the accompaniments, we think might with some degree of propriety be termed transparent.

TRANSPARENT Column. See COLUMN.

TRANSPIRATION, in Physiology, an expression derived from the French, for the cutaneous exhalation. See INTESTINES.

TRANSPLANTATION, in Natural Magic, was used for a ridiculous supposed method of curing diseases by transferring them from one subject to another; and was much in vogue among certain chemicals, or rather sympathetic phisicians, some ages ago.

This transplantation was effected, either by the use of a certain medium, called on that account a magnet; or, without that, only by simple contact.

Transplantation, by means of the magnet, was of five kinds, viz., 
imfination, implantation, imposition, irritation, and injection; but the whole practice is now deservedly exploded.

Transplantation, or Transplanting, in Agriculture and Gardening, the operation of removing plants and trees of various kinds from the situations and places in which they were originally sown, set, or raised, and replanting them in others which are more convenient and suitable. It is practised with a great number of each of these different sorts of vegetable productions.

With the former, for field crops, it is had recourse to with many of the cabbage tribe, and some other such sorts of plants, for wheat, and lately for potatoes. The transplanting of all the different sorts of plants of the first of these kinds, should always be performed, as much as possible, when the weather is in rather a moist state, the ground having previously been put into a suitable state of preparation, by proper ploughing and other means. The plants are placed out, in such cafes, at different distances, as from two to three feet or more, as the nature of the land and circumstances may direct.

In transplanting wheat plants, which is sometimes the case, it has been noticed to be a practice which is not likely to become general for whole fields, but that circumstances may not unfrequently occur where it may be attended with much benefit when employed in a partial manner; as in those cafes where some accidental failures may have happened to the parts of fields, which on a careful examination may be found to have wholly misled, or to be thinner than the others. In all such instances, whatever may have been the cause of the deficiency,—whether from the wheat plants having been destroyed by wetness during the winter, or any other cause,—some parts of the same fields will mostly be found, from which plants may be drawn for this purpose, without injury; and if attention be paid to good and neat cultivation, the vacancies may be usefully filled up by transplanting from such spots, where it may sometimes happen that the plants are so thick as to do harm to each other, and, of course, service be done to the crops in such parts, while the vacant land is filling with them in other places, and by such means the whole be rendered more perfect, uniform, and regular, improving the appearance as well as the abundance of the crops.

The practice of transplanting wheat in the early spring months, in these and other cafes, has long been advised by different writers, and lately had recourse to, with great success, in the parish of Bocking in Essex, to some considerable extent. It was there performed with the common dibble at the distance of twelve inches, but nine would have been preferable.
ferred, had it not been apprehended that the plants which could be collected would be insufficient.

It is thought capable of being more generally introduced with great advantage not only in the abundance of the crops and the saving of feed, but in the vast increase of employment which it furnishes for the labouring poor of different descriptions, as well as in some other respects, as may be seen in the first volume of the Corrected Agricultural Survey of the above county.

In regard to the transplanting of potatoes, it has been shewn by the trials of the Rev. Mr. Cartwright, which are described in a paper in the fifth volume of Communications to the Board of Agriculture, that there is no plant which admits of being transplanted with more complete success. It is suggested as a practice which, besides affording hints to the farmer for the improvement of the field-crops of this sort, may throw in the way of the cottager some useful information, as it may teach him, that after he has had crops of spring and early summer vegetables in his garden, he may procure from it, by being provided with a small bed of the nursery kind for potatoe plants, a valuable supply of useful food for his winter consumption and advantage.

The crops in these transplantings were after aces of the winter kind, and only top-dressed for, which is a considerable saving of manure.

In garden culture, transplanting is essentially necessary for a great variety of different plants of the euculent and other kinds, as has been seen under their different heads. And it has lately been found to be a considerable improvement in the culture of the onion, both in the garden and the field. When transplanted in moist weather into small shallow drills, eight or nine inches apart on beds, having the whole roots firmly well dipped in a thick puddle liquid, composed of one part foot, and three parts earth, with a sufficient quantity of water to form the mixture, they are said to succeed perfectly. It is a method too which has the advantage of being less expensive, and of course more profitable, than the common one, as the work can be cheaply done by boys or girls; it admits of clearing the plants of weeds better, which is highly beneficial to their growth; a few small beds thickly sown will furnish plants for as many acres; the ground which is to be planted may be under winter or spring crops, it being sufficient to clear it of them by the end of April, or the beginning of the following month, when the transplanting of the onions is to take place, and those contained in the seed-beds will, in the mean time, afford the necessary supplies for family use or the market. It has besides the benefit of having the onions better in quality and larger in size, and the crops wholly free from worms and the rot. See a paper on this subject in the first volume of the Memoirs of the Caledonian Horticultural Society.

With the latter, or plants of the tree-kind, transplanting is performed both for those of the forest and fruit sorts in a great number of cafes. It is a practice which is much had recourse to in nursery-grounds for raising the different kinds while in their early growths, as the first two or three years. But for providing timber-wood, especially with some sorts of trees, as the oak and a few others, it is probably better not to transplant at all, as the produce is said to be firmer, more durable, and better for many uses, where it is not done. See Timber.

Though the work of transplanting be mostly practised while the trees are in this young state, it is capable of being effected, by proper management and attention, with perfect success, when they are of considerably larger growth. Mr. Amos, in his work on "Agriculture and Planting," has observed that, as in forming various sorts of ornamental undertakings with trees, as those of extensive lawns and fields interplanted with large collections of such as are of the forest kind, and flowering shrubs placed out in the wilderness manner, with serpentine walks and paths running through the whole, the delights often become defective and unsatisfactory, from the want of various sorts of proper large-sized trees: to supply the defect in such cafes, plenty of different proper-sized trees should always be at command, for the purpose of transplanting into bare fields, parks, and about naked new buildings, or into other situations where they may be most capable of imitating that charming tasteful negligence of nature which is so ravishingly pleasing to the senses. And that in order to prepare the young trees for being thus transplanted when large, they should, it is said, be continued in the feed-beds for the space of two years and a half, and then be set out at greater distances, reducing the tap-roots considerably, but those of the lateral kind only sparingly. That as in such young trees the root grows faster than the stem, (as oak-plant a foot and a half in height has sometimes a root four feet in length,) the necessity of mutilating the root, especially the tap one, in such cafes, is clearly shewn, the plants then emitting radicles in every direction, grow faster than if the roots had remained perfect. And that if a plant, or tree, be transplanted in this state, it succeeds with greater certainty the more absorbent radicles are preferred to the root. When such trees have remained two years in the nursery-beds, they should be again removed, dressing their roots as before, and increasing the distance between them, when they may continue three or four years more. After which they may be put out in collections, where they are to remain for good, or until wanted for transplanting. That as in transplanting large trees, some large fibres of the roots are unavoidably broken and mutilated, and consequently the absorption of nutriment in the plant diminished, it is necessary that boughs answerin to the destroyed roots should be cut away, in order to lessen the transpiration in proportion to the quantity of food that may be taken up.

The most proper and desirable sorts of trees for transplanting in this large state, are, it is conceived, the different sorts of elms, of which the English is the best, as it is most aper, and soonest recovers its wounds. The lime, too, will bear to be removed at a great size, as its wounds soon heal, and it may be formed into any shape desired. The oak, the beech, and the ash, will likewise bear to be removed when rather large, but they require more care in the work than the former: on the whole, those trees, the bark of which is the thinnest and smoothest, will be the most proper for this purpose. The hornbeam, the fycamore, the large-leaved maple, the sweet and horse-chestnut, and the laburnum, will all bear transplanting and removing, if they do not exceed fifteen or sixteen years' growth, and from twenty to twenty-five feet in height; if they are older and larger when this is done, they do not recover their wounds so perfectly as to become hand-ome trees. The larch and mountain-ash also bear transplanting and removing when large, but they should not exceed twelve years' growth. The balsam poplar of Canada, too, is a fine plant of the tree-kind, which is raised with much care, is hardy, quick in its growth, and will bear to be transplanted and removed at a great size. And the crab-tree and white-thorn will suffer themselves to be transplanted at a large growth, when in a healthy and growing state; and that as few trees exceed them in beauty or fragrance in the spring feason, or their rich
rich glow of fruit in the autumn, they may be transplanted out singly into lawns, fields, and parks, where, when judi-
ciously interpersed with other trees, they may highly deco-
rate such situations. The elevation of flatly trees in clumps, 
parks, lawns, or fields, is considered, on the whole, as having 
a most agreeable effect, but that in new designs they cannot 
often be had without waiting many years, and incurring 
much labour, difficulty, and expense. However, by means 
of the directions which have been given above, and the use 
of the transplanter for large trees, it is thought the dif-
culty may be greatly removed, and a good flat foot made, 
even in bare fields, parks, and about new-built houses, with-
out suffering such inconveniences, which must be a great 
inducement to such persons as are advanced in life to have 
recourse to the practice. See Transplanter, Tree.

In the work of preparing for the removal and transplan-
ting of large tall forest-trees, it is recommended as proper 
to dig a circular trench all round them two or three feet 
depth, as early as possible in the spring; by which many new 
roots will shoot from those which have their ends cut off, 
and by which the balls of earth will be better held together, 
when the trees are removed in the succeeding autumn; and, 
by their having previously produced so many more fine 
radicles of the absorbent kind, be more certain of growing 
in their new situations. After which, the first step to be 
taken in the following autumn, is to mark out the places 
where the trees are to be removed and transplanted to, and 
there to dig pits three, four, five, or six feet wide, having 
the depth of from twenty-four to thirty-six inches, as the 
size of the roots and balls of earth which hang about them 
may be. The top-soil in these diggings is to be thrown to 
the sides of the pits where the trees are to come, and the 
bottom or poor soil to the other sides. It this state the 
pits are to remain until the trees are nearly ready for re-
moval, which is to be effected in this manner, and is the 
next step in the busines. It is carefully to raise the trees 
which are to be the most healthy, and such as are of the 
pyramidal form, with as many roots, herby fibres, and as 
much earth about them as possible. This is to be accom-
plished by digging trenches round about them, two, three, 
or four feet from the bodies of the trees, as their sizes may 
be, and about three or four feet deep, floppy them on 
the sides where the transplanter is to receive the trees. Then 
to bend the trees so far to one side, by the assistance of ropes, 
that the bottom roots may be easily got at, when they may 
be cut across with a sharp hatchet, and the extremities 
smoothed, which have been scattered, by a sharp hedging-bill, 
when bearing them upright again, bend them to the con-
trary side, and dress the roots in the same way, then raise 
them up a second time, when they will be ready for tran-
spalting. In which cafe, it is directed that one fet of hands, 
as one, two, or three men, should fill the pits half full of 
water, the top-soil and other fresh mould being mixed with 
it to the consistence of a thin puddle. That another set of 
men, as two, four, fix, or eight hands, as the sizes of the 
trees may be, should rear up the transplanter of the trees 
against them by means of the rope for the purpose, balancing 
them properly by the machine, and leaving the fore-carriage 
part of it upon the ground, taking care to surround the 
places well with filth, where they roll upon the bars and 
bolts, in order to prevent the bar from being galled and 
rubbed off, which would greatly injure the trees. The 
whole should then be pulled and brought down together, in 
a gentle manner, by the rope for the purpoap; three or 
four men and a horse being employed in the busines, where 
necessary, leading well the motion downwards, and at the 
fame time a man or two are to guide the bolt of the machine 
into the fore-carriage, into which the horses are then to be 
pulled, and the trees conveyed to the pits, which by this 
time will be ready for their reception. The carriage is then 
to be drawn up along that side of the pits on which the 
top-foil was laid, backing it until it gets into such a position, 
that by rearing the machine and trees upright, as in loading, 
the root parts with the balls of earth about them, may be 
dropped exactly into the centres of the pits, amidst the 
puddles, which will fo run among and into the cavities of 
the balls, hanging to the roots, as to farround and cover 
every fibre. The pits are then to be filled completely up, 
and a mound of earth raised about a foot higher than the 
surface all round each of the trees to two or three feet 
distant from the centres, hollowing it towards the trees, for 
the better reception and retention of moisure. After this, 
it is suppos'd the trees will be able to brave and defy the 
rudel affulats of the winds, without any supports, even at 
the first transplanting out. In this manner, the whole 
busines of transplanting large forest-trees is to be proceeded 
in, and which has been found very successful in a variety of 
trials.

In garden management, too, large old fruit-trees of both 
the wall, espalier, and standard kinds have lately been found 
capable of being transplanted with great success and advan-
tage, when performed somewhat in this simple manner. 
When for large wall-trees, it is to be done by forming a 
half-circle for each in extent equal to the five 
of the 
trees, as feven or eight feet for such as cover a large space, 
measuring from the trunks of them; digging a trench 
round that three feet in width, and five inches below the 
roots, carefully preferring the whole, and working out 
the earth from among them with a blunt tool, and cajling out 
the loose mould by the spade. Proceeding thus until 
got fully under the trees to be raifed. The roots are then 
to be tied loosely together, and the branches freed from 
the walls, and put in parcels to prevent their being injured. 
The trees are now to be conveyed to the places into which 
they are to be transplanted; where proper-sized pits, for 
allowing the roots to be spread out and extended, are to be 
provided, placing them upright in them, using fresh earth 
alone or mixed with dung, and disposing them, so as that 
the surface roots may be equal with the top of the border 
in which they are put, then packing in the well-broken 
earth underneath, and for about a foot round the bottoms of 
the trunks, to fill all vacancies where the roots proceed from. 
After which, the whole of the perfect roots are to be 
attentively spread out at full length, cutting off any dead, 
bruis'd, or knotty parts; the ends of the remaining ones 
being smoothed and preserved at different lengths, keeping 
some at full length, others at five, four, and three feet, and 
a few even at one foot long, taking care to save as many of 
the small fibres attached to the leading roots as possible; 
beginning by laying the whole out in sets or layers from the 
bottom at the wall-side of the half-circle, in the same manner, 
until the top be reached, arranging the small fibres in reg-
ular order, and covering the different layers of roots with 
to or three inches in thicknes of mould, packing it well 
by the hand, and never letting the foot on the roots which 
have been covered. Proceeding in this way with each side 
of the half-circle, until they meet in the middle part of it, 
raising the whole with earth to the height of two inches 
above the level of the border; and above all applying three 
inches thick of good rotten dung. A full watering is then 
to be given, to settle the earth about the roots. Boards are 
to be laid to prevent the roots being trodden upon in narial-
The transplanting of efpalier and flatland trees only differs in this, that a full circle is to be dug round them.

The most proper seasons for transplanting large fruit-trees are either in the beginning of the autumn, or just before the spring, in mild weather.

A great number of such large trees has been transplanted in this manner with complete success, some of which have borne half crops the first year afterwards, and others more, the fruit in most cases being greatly improved, as may be fully seen by consulting different papers on the subject in the volume of Horticultural Transplants already noticed.

For fruit-grounds, the young stocks for apple-tree plants are most likely to transplant out the second or third year of their growth. See Stocks, Apple, &c.

The transplantation of the blossom-buds of fruit and other trees has lately also been tried, by transplanting the abundant buds of this first of the orange trees and taking the branches of others, which is said to be capable of being performed with facility, and perhaps considerable advantage, in some cases. Such buds of pear-trees, when inserted into the strongest young shoots of old ones, may afford abundant crops of very fine pears, and be gained with little trouble. The buds of these pear-trees are the best which have been formed upon the boughs of the abundant branches of blossoms of the preceding year; and, that, instead of taking out the wood of the bud wholly, as is usual, it is most advantageous to let it remain in small quantities, only paring it very thin.


Transplantation of Flower-Plants, among Florists, the means of putting out and managing the different sorts of young plants of this kind. Work of this sort should always be performed according to the particular nature and habits of growth of the several kinds of these plants. In the auricula, the polyanthus, and different other similar kinds, the transplanting is often done early in the spring season by some; while others perform it annually about the beginning of the autumnal season, especially for the first of these sorts; but probably the most suitable period is that about the beginning of the first of the above seasons, when the weather is rather showery, though it may often be performed later with good success. Those plants designed for strong blooming, should, however, never be transplanted, either early in the spring or too late in the summer, as they always require to get well-rooted before the winter season sets in.

But notwithstanding the young offsets and other plants are to be transplanted in the above manner into their small pots, the large strong-blowing roots are not to be transplanted or removed more frequently than once in every two or three years, as the risk of having fine strong flowers is otherwise very great, as plants of this sort never thrive in a right manner, until their roots have reached the depth of the pots, which rarely happens in so short a time as twelve months; but a difference is to be made, in performing this sort of work, between the plants which throw out suckers or offsets in great abundance, and such as do not; as the former require more frequent transplanting, all or most of such parts being carefully pared off and removed at the time; while in the latter it need not be so often. Where plants of strong superior bloom for incafe are wanted, it is of material consequence to keep all such suckers and offsets from growing on the stalks of the old plants without fibres, they being kept constantly well rubbed off while of very small fixes, but those that rise from below the surface of the earth need not be so much regarded.

It is thought by some, that the large healthy strong blooming plants of this sort need not be removed or transplanted, and have the earth shacked wholly from their roots every year, as is the usual practice; as they have been found to do better without, by having occasional fresh earthing up the pots in some late trials. They should not, however, remain longer in this way than the third year. Florists in general have, it is supposed, been too fond of frequently transplanting or removing the large blooming plants of this sort, as once in two, or not more than three years, will be found sufficient, and more beneficial. The plants of this large blooming kind are not by any means to be transplanted or removed in dry hot times, as by shaking the mould cleanly from the roots of the plants, the fibres will not be freely drawn, unless the season be inclined to be showery, and there be what is termed a cool moist state of the air. Fine young maiden plants may, however, sometimes be transplanted into small pots in such dry weather, being slipped out of the pots with the whole balls of earth about them, and then immediately relaid in full-sized blooming pots for the ensuing season.

In short, in transplanting these as well as many other sorts of flower-plants, much more always depend upon the state and condition in which the plants are found.

Where the plants of this kind have not been transplanted for some length of time, as two or three years, the small roots having filled the pots, the large, the tap, or the carrot root, as it is often termed, may have become so long as to stand in need of shortening by taking it out of the pot, shaking the earth away from it, and doing what is necessary, as by remaining too long it either gets rotten at the end, and constantly keeps the plant weak, or becomes too long for a common pot; besides, it wants shifting or transplanting every year, and never produces fine strong flowers. The small roots are to be reduced to about a dozen, those nearest the leaves being left for supporting the plants. Where there is any canker or rottenness in the root, it is to be cut to the quick or quite sound parts, and the wounded part secured by the use of a composition made of beeswax, turpentine, and white rye, and be made to crust over by exposure to the sun. Where large blooming or other plants of this sort to be removed have been in the pots only one year since the last transplanting, they are to be slipped out of the pots, with all the earth about them; and as the roots will be small but little matted, it need not be shaken from them, only cutting it and the fibres of the roots down a to a small ball in each plant, according to their ages and sizes. Some, however, do not like this method, but remove all the earth in transplanting them.

Different other fine flower-plants are to be managed somewhat in the manner which has been thus laid down in transplanting them, as the differences of the nature and habits may direct, only they will, for the most part, seldom require so many transplantations; indeed once or twice will almost always be as many as are necessary for them.

Transplanted or Ground Onion, in Gardening, a new sort of root of this kind lately brought from Egypt, and introduced into the northern parts of this island by Mr. J. Burns, captain in the royal navy, whence it is sometimes called by that name.

The manner of its cultivation, uses, and advantages, are thus described in a paper in the Scotch Horticultural Memoirs. The roots, being separated from the branches in which they grow, should be put out or transplanted into any
any ground that is considered suitable for the common root of this fort, the soil being first well prepared and enriched by the use of horse-dung in a reduced state; the plants or roots are then to be covered with only about one inch in depth of earth. The bell and moat proper time for the putting them out or transplanting them is during the month of April. They should be put about a foot or eighteen inches asunder. They grow and are produced in clusters, somehow in the manner of the bunches of grapes or currants; some growing in a round, others in a conical form or shape; those on the surface being the largest, while those in the centre are usually the soonest ripe. It is necessary that they should be taken up as they ripen, and when they are intended for keeping, they may be taken up rather before they are completely ripe.

It was found that two roots, the tops of which had begun to decay in the beginning of August, and which had been raised from the ground in the beginning of the following month, produced, in one case, nine onions, and in the other twelve. The onions in these cases were of very different sizes, but the whole, when taken together, weighed more than a pound. Twenty-three onions of this fort, when planted out, are however said, in another instance, to have produced upwards of six hundred fine plants at the same time.

The circumstance in which this fort chiefly differs from the common Deepsfort and Straffburgh feed-kinds is, that it is larger, as in tarte the quality is much the same. But it has, it is said, a material advantage over the feed-onion in this particular, that if planted about the middle of April, it will be fully ripe about the same time in the following September. Besides, it is not liable to accidents from any badness, imperfectition, or too moist or too dry seasons, as is often the case in the common feed-onion. Another great advantage the transplanted or ground onion has over the feed fort is, that no inhaustance has yet occurred where it has been injured by vermin or insects, which is frequently the case with the feed-kind. This fort of onion would seem on several accounts to deserve further attention to its cultivation and growth in this very uncertain climate for the common crops of such roots.

Transplanter, Tree, in Agriculture and Gardening, a machine or contrivance constructed for the purpose of afflicting and facilitating the means of transplanting and removing trees of large growths and sizes.

A very simple and useful contrivance or machine of this kind has been given by Mr. Amos in his practical work on "Agriculture and Planting," with a correct representation of the frame. It is simply composed of the two hind and the two fore-wheels and carriage part of a farm-waggon, with a platform, and diagonal frame raised and erected upon them so as to be capable of receiving the tree, and of retaining it in a firm, steady position, until it be conveyed to the place where it is wanted to be replanted, when it can be let down with great ease and readiness into the hole where it is to be set and grow.

Much facility and dispatch are given in replanting large trees by machinery of this kind for ornament or other uses. See Transplantation.

Transport-Ship, is a vessel used to convey provisions, warlike stores, fouders, &c. from one place to another; also convicts over the seas.

Transportation, the act of conveying or carrying a thing from one place or country to another.

In matters of commerce, transportation is of equal import with re-exportation, viz. the taking up of commodities in one foreign state or kingdom, bringing them hither, and paying duties for them; and then conveying them into some other foreign state; by which it is distinguished from importation and exportation; where the commodities are either carried originally out of, or brought finally into, our own kingdom.

Transportation, in Law, is also a kind of punishment, or, more properly, an alleviation or commutation of punishment, for criminals convicted of felony; who, for the first offence, unless it be an extraordinary one, are ordinarily transported to some foreign country for a term of years, or for life; within which, if they return, they are executed without further trial than ascertaining their identity.

This is made felony without benefit of clergy by statutes 4 Geo. I. cap. 11, 6 Geo. I. cap. 23, 16 Geo. II. cap. 15, and 8 Geo. III. cap. 15; as is also the afflicting transports to escape from such as are conveying them to the port of transportation.

Exile and transportation are punishments at present unknown to the common law; and whenever the latter is now inflicted, it is either by the choice of the criminal himself, to escape a capital punishment, or else by the express direction of some modern act of parliament. Accordingly, it was enacted by the statutes 4 Geo. I. cap. 11, and 6 Geo. I. cap. 23, that when any person shall be convicted of any larceny or felony, who by the law shall be entitled to the benefit of clergy, and liable only to the penalties of burning in the hand or whipping, the court in their discretion, instead of such burning in the hand or whipping, may direct such offenders to be transported to America (or, by statute 19 Geo. III. cap. 74, to any other parts beyond the seas) for seven years. And by the subsequent statutes 16 Geo. II. cap. 15, and 8 Geo. III. cap. 15, many wife provisions are made for the more speedy and effectual execution of the laws relating to transportation, and the conviction of such as transgress them. But now, by the statute 19 Geo. III. cap. 74, all offenders liable to transportation may, in lieu thereof, at the discretion of the judges, be employed, if males (except in the case of petty larceny) in hard labour for the benefit of some public navigation; or, whether males or females, may, in all cases, be confined to hard labour in certain penitentiary houses, to be erected by virtue of the said act, for the several terms therein specified, but in no case exceeding seven years; with a power of subsequent mitigation, and even of reward, in case of their good behaviour: but if they escape and are retaken, for the first time an addition of three years is made to the term of their confinement; and a second escape is felony without benefit of clergy.

Transportation is said to have been first inflicted as a punishment by 39 Eliz. cap. 4. Blacklt. Com. vol. iv.

Transportation of Plants, is the removal of them from one country to another; with respect to which great caution is necessary. The plants sent from a hotter country to a colder should be transported in the spring of the year, that the heat of the season may be advancing as they approach the colder climates; and, on the contrary, those which are sent from a colder country to a hotter should be sent in the beginning of winter.

The best way of packing up plants for a voyage, if they be such as will not bear keeping out of the earth, is to have boxes with handles, and holes bored in their bottoms to let out the moisture, filling them with earth, and planting the roots as close together as may be; the plants should be set in these boxes a fortnight or three weeks before they are to be put on board, and in good weather they
they should be set upon the deck, and in bad removed or covered with a tarpaulin.

If they are going from a hotter country to a colder one, they must have very little moisture; if, on the contrary, they are going from a colder to a warmer, they may be allowed water more largely, and being shaded from the heat of the sun, they will come safe.

Very many plants, however, will live out of the earth a great while; as the sedums, euphorbias, ficoides, and other succulent ones. These need no other care than the packing them up with moss in a close box, and then should be a little hay put between them, to prevent them from wounding or bruising one another, and holes bored in the boxes, to keep them from heating and putrefying. In this manner they will come safe from a voyage of two or three, or even four or five months.

Several trees also will come safely in the same manner, taking them up at a season when they have done growing, and packing them up with moss. Of this sort are oranges, olives, capers, jasmines, and pomegranate-trees. These, and many others, are annually brought over from Italy; and though they are three or four months in the passage, seldom miscarry. And the best way of sending over seeds, is in their natural husks, in a bag, or packed up in a gourd-shell, keeping them dry, and out of the way of vermin. Miller. See Seed.

Those who are defirous of particular instructions with regard to the boists means of collecting both seeds and plants in distant countries, and of preserving them during a voyage hither in a vegetating flake, may consult Mr. Ellis's Directions for bringing over Seeds and Plants from the East Indies, and other distant Countries, in a State of Vegetation, &c. 4to. 1770.

TRANSPORTING, in Sea Language, the act of removing a ship from one place to another, by the help of anchors and ropes. See Warp.

TRANPOSITION, in Algebra, the bringing any term of an equation over to the other side. Thus, if \( a + b = c \), and you may make \( a = c - b \); this is said to be transposed. See Reduction of Equations.

TRANPOSITION, in Grammar, a disturbing or dislocating of the words in a discourse; or a changing of their natural order of construction, to please the ear, by rendering the contexture more easy, smooth, and harmonious. A transposition, which renders the sense perplexed, is vicious. The construction of the ancient languages, being much more artful than that of the modern ones, allowed of much greater, and more frequent transpositions. The English, French, &c. fearfully ever allow of them but in oratory and poetry; in which cases, they serve to give a force and energy to the discourse, or the verse, and to prevent their languishing.

TRANPOSITION, in Music. We will venture to say, from long experience, that no musician can transposite at sight, with certainty and firmness, but by a perfect knowledge of all the clefs necessary to change any one of the seven notes in music to any other we please. (See Clefs.) This was Dr. Pepusch's method of teaching transposition, though not very clearly explained in his treatise; and Mr. Galliard's method, which he has made perfectly intelligible by a plate, in his translation of Toh. Cerone, in 1614, seems to have been the inventor of this method. See Cerone.

The transposer, besides changing the notes higher or lower by imaginary clefs, without changing their original places on the staff, must likewise know what sharps and flats belong to every key. If, for instance, we wanted to transpose our national supplication of "God save great George our King!" from G natural to Eb, a major third lower, we have only to imagine a clef that will make the second line E, which is the sopрано, or tenor clef, on the first line. If, again, a finger wished to have this favourite air a third higher than G, which is B b, the bafe clef with two flats will render all the notes, which with the treble clef were in G, a minor third higher.

Now to render G on the fourth space in the base B b, we have only to suppose the treble clef in the accompaniment instead of the base. And to render the fourth space B b, instead of G natural, we have only to imagine the base clef on the third line with two flats, instead of the fourth with one sharp.

TRANSPORTING, in Geography, a town of Algiers, near the coast of the Mediterranean, on a gulf called the Immifia; 30 miles S.W. of Oran.

TRANSTRAND, a town of Sweden, in Dalecarlia; 80 miles N.W. of Falun.

TRANSTRUM, in the Naval Architecture of the Ancients, a term used to express a sort of cors or transverse seats that were placed in the polycrotic galleries of those times, and served for the places of several of the rows of men, who could move and work their oars under the seats of the other or lateral rowsers of the next tire.

Melbonius, who has written expressly on the naval architecture of the ancients, has better understood the places and use of these transttras, than any other author of last times; by a proper arrangement of these seats, and the lateral rows above and below each, he has taken off greatly from the height allowed by Scaliger, and others, to the polycrotic velists.

TRANSMUTATION, in the Roman Theology, the supposed conversion or change of the substance of the bread and wine, in the eucharist, into the body and blood of Jesus Christ.

Transmutation, taken in its general and literal sense, implies any change of one substance into another. Thus, the change of Mofes's rod into a serpent; of the waters of the Nile into blood; of Lot's wife into a pillar of salt; were preternatural transmutations: and the change of the food we eat into the substance of our bodies, is a natural transmutation.

But the word, in its proper and technical sense, is, to return to the miraculous change which the Romish church holds is wrought in the sacrament, by the consecration of the priest.

One of the great articles of that church, rejected by the reformed, is that of transmutation; the latter maintaining the transmutation to be only figurative, and the former affirming it to be real.

The reformed interprete, is, in the text Hor est corpus meum, This is my body, by significat, q. d. This signifies my body.
body: but the council of Trent stand up strenuously for the literal sense of the verb. Thus, in can. i. feil. 13. of that council, it is expressly decreed, that, in transubstantiation, the body and blood of our Lord Jesus Christ are truly, really, and substantially, under the species of bread and wine.

It is added, that by truly, we mean properly; and not only by signification, as if the eucharist were no more than a sign of the body and blood of Jesus Christ: that by really, we mean in fact, and not only in figure, as if the eucharist were only a figure and representation of the body and blood of the Saviour of the world; and that by substantially, we mean in substance, and not only in virtue and energy. Thus is truly opposed to a simple sign, really to a figure, and substantially to energy or virtue.

This doctrine was established in the fourth general Lateran council, under pope Innocent III., in 1215, who is said to have introduced and established the use of the term transubstantiation, which was hitherto absolutely unknown; though some say that Stephen, bishop of Autun, first used this term. Burnet on the Article's, p. 312.

It was principally owing to the authority of Lanfranc, the principal champion of this new doctrine against Berengarius, supported by Rome, that so strong a tenet was established in the eleventh century, both in England and France. At the beginning of this century it was unknown to the church of England, as is incontrovertibly proved by the epistles and canons of 

It seems difficult, at first sight, to account for the zeal of Rome in advancing and propagating a doctrine so full of absurdity as that of transubstantiation. What use, it may be said, could there be in understanding a figurative expression (with which manner of speaking the Scripture so much abounds) according to the letter, which makes it nonsense; when that nonsense does not appear to be productive either of power or profit to the church? The supremacy and infallibility of the bishops of Rome; the doctrine of purgatory, masses, and prayers for the dead; the worship of saints and images; the celibacy of the clergy; the merit of monastic vows; the necessity of confession to; and absolution by a priest, for the remission of sins; the power of the pope to grant indulgences, and apply to the benefit of other men the works of supererogation done by saints, and therefore belonging to the treasury of the church; all these opinions have a clear and evident tendency to raise and support the dominion and wealth of the Roman see and the clergy; whereas the multiplied contradictions and impossibilities contained in the notion of transubstantiation, seem to serve no purpose, but to expose the Christian faith to the ridicule and contempt of the Jews and Mahometans, or other unbelievers. Nevertheless, the solution of this difficulty may be found in the words of Pope Pius VII. viz. "That it was a most execrable thing, that those hands, which had received such eminent power above what had been granted to the angels themselves, as, by their ministrv to create God the creator of all, and offer up the same God, before the face of God the Father, for the redemption and salvation of the whole world, should defend to such ignorance, as to be put, in sign of subjection, in the hands of princes, &c." The same words were also used by pope Urban II. at the council of Bari. And certainly nothing could to raise the idea of the priesthood, or produce such veneration for them in the minds of the people, as their being supped to polish this more than angelical power. Lyttelton's Hist. of King Henry II., vol. i.

**TRANSUBSTANTIATION, Declaration against.** See Declaration.

**TRANSVERSALIS COLLIS, transversa gere, in Anatomy, a small narrow muscle, placed at the lower and lateral part of the neck, and upper part of the back, which it extends from the transverse processes of the five or six lower cervical vertebrae, to the corresponding processes of four or five dorsal vertebrae after the second. The splenius, levator facæula, facralimbus, and longissimus dorfi, cover it behind, where it is inseparably connected to the two latter: it lies upon the transverse-mana-loidous, to which it is also intimately connected, the complexus, and multifidus spine. The front edge of the muscle is attached to the cervical transverse processes already mentioned; it passes over those of the two first dorsal vertebrae, and is then attached to the transverse processes of the four or five following ones. These attachments are effectuated by slender tendons, connected with those of the splenius, levator facæula, and multifidus spine. It will extend the neck on the back; or, if the muscle of one side acts separately, it will incline the neck to its own side.

**TRANSVERSE, something that goes across another from corner to corner.**

Thus bends and bars, in heraldry, are transverse pieces, or bearings: the diagonals of a parallelogram, or a square, are transverse lines.

Lines which make intersections with perpendiculars, are also called oblique or transverse lines.

**Transverse Axis, or Diameter, called also the first or principal axis.** See Axis, Diameter, and Latus-Transversum.

The transverse axis of an ellipse is the longer axis, or that which transversely it lengthwise, in contradistinction from the conjugate one. See Conic Sections, and Ellipse.

For the transverse axis of the hyperbola, see Conic Sections, and Hyperbola.

**TRANSVERSO-SPINALIS, in Anatomy, a name sometimes given to the multifidus spine. See Multifidus.**

**TRANSVERSUS ABDOMINIS, a broad muscle of the abdomen. See Obligus.**

**TRANSVERSUS NAFE, a synonyme of the contrætor narium. See Nare.**

**TRANSVERSUS PEDIS, transversus des orteils, a small muscle lying across the foot, immediately under the heads of the metatarsal bones, and extending from the four lateral these bones to the first phalanx of the great toe. It is thin and feby; covered above by the metatarsal bones and interscalar muscles, and covering below the flexor tendons, arteries and nerves of the toe. It arises from the heads of the four last metatarsal bones, and is inserted, together with the tendon of the adductor pollicis pedis, in the outside of the basis of the first phalanx of the great toe. It will approximate the great toe to the others; and by drawing the toes together, from side to side, will render the foot concave.**

**TRANSVERSUS PERINIS, two muscles of the pedis.**

**TRANSVERSUS PERINIS ALTER, a muscle, of which the former is connected to the end of the large intestine. See Intestine.**

**TRANSUM, in Gunnery, is a piece of wood which goes across the cheeks of a gun-carriage, or of a gun, to keep them fixed together; each tramum in a carriage is strengthened by a bolt of iron. See Carriage.**

**TRANSUMPSTION, Transsumption, in the Schools, a syllagism by concession or agreement, used where a question proposed is transferred to another, with this condition, that the proof of this latter shall be admitted for a proof of the former.**

Thus
Thus Aristotle, in his book De Caelo, undertaking to show, that all the flars are round, transfers the question to the moon, and proves her rotundity from her increasing and waning; supposing it a thing admitted by his opponents, that the flars are all alike.

TRANSYLVANIA, Principality of, in Geography, a country of Europe, bounded on the N. by Hungary, Poland, and Moldavia; on the E. by Moldavia; on the S. by Walachia and the bannat of Temeswar; and on the W. by Hungary. The form is nearly oval, about 400 miles in circumference. It is surrounded on all sides by lofty mountains, and is itself mountainous and woody; the mountains run from N. to S., and branch off likewise E. and W., and terminate at the centre, in hills covered with vineyards, and abundant in minerals. The air is generally warm, but more wholesome than that of Hungary; the soil is fertile, abounding in corn; flax of a very good quality, which is manufactured into linen; wine, cattle, and rich pastures: among the minerals are gold, silver, copper, iron, quicksilver, cinabcr, antimony, sulphur, vitriol, rock-fall, salt-petre, ochre, &c. The principal quadrupeds are buffaloes, hares, wild a=ises, elk, bears, wild boars, lynxes, chamois, mar- tens, ermines, and beavers. The inhabitants are composed of different nations: Hungarians, Sikli or Scythian Huns, Saxons, Walachians, Armenians, Rascians, Bulgarians, and Greeks; to which may be added Jews and Cingars, who live in tents, and lead a vagabond life like gypsies. This country is by the Germans called Siebenbergen, and by the Hungarians Erdely. It was an ancient part of Dacia; and, conquered by Trajan, it became a Roman province. It afterwards fell into the hands of the Goths, Huns, and afterwards the Hungarians. In the year 1004, it was first made a province of Hungary, and continued under the government of a wawode to the year 1526, when two rival princes contended for this principality; one of them was supported by the German emperor, and the other by the Turks; whereupon this country became the seat of war for many years. The princes of the house of Ragotzki were at the head of the Protestant faction, and supported by the Turks, but being at length obliged to quit Transylvania by the Austrians, Ragotzki fled for refuge into Turkey; and at the treaty of Carlowitz in 1699, this country was confirmed to the house of Austria by the Turks. The government of Transylvania is wholly different from that of Hungary; and, by the joint consent of prince and people, formed into an arilocratical government; and, since the year 1722, rendered hereditary to the princes and princes of the house of Austria. Formerly the prince of Transylvania succeeded to the government by free election, but since the year 1722 by inheritance; and though his power is connected with that of the king of Hungary, and archduke of Austria, yet his government and privileges differ from both. The soils of Transylvania, with respect to the number of its nations, are divided into Hungarians, Siculi, and Saxons; with respect to its different religions, into Catholics, Calvinists, and Lutherans; and formerly, also, into Unitarians; but, politically, after the example of Hungary, into prelates, nobility, gentry, and royal towns. The magnates confit of the great officers of state, the counts and barons. The gentry are Hungarians and Siculi, but the royal towns Saxons only. The nobility are generally very proud, and keep their peafantry in a state of flavery; four out of fix days in the week the peafant is obliged to labour for his master, having only the remaining two days for himself. The principality of Transylvania is governed in the name of the prince and nobility, by the diet, the office of fiate, the royal government, the exchequer, the assembly of Hungarian counts, the tribunals of justice, and the magistrates of the Siculi and Saxons. The diets meet by summons from the prince at Hcrmanstadt. The revenue arises from the contributions, customs, metals, minerals, rock-fall, royal demefnes, cfeheits, and confications; and are levied by the treasury. This province pays to the emperor in taxes of all kinds 1,500,000 florins annually, which is chiefly imposed upon the land, for the payment of the citizens is very trifling. Transylvania formerly could bring from 80,000 to 90,000 soldiers into the field; but at present the whole force of that principality consists of fix regiments, under a commander-in-chief, for the defence of the country.

TRANTERY, in some Cufions, denotes the money arising by amerciaments of ale-fellers and victuallers for breaking theaffize of bread and ale; particularly at Luton, and other manors in Herefordshire.

TRAP, in Geography, a town of Maryland; 7 miles S.E. of Oxford.—Allo, a town of Maryland; 7 miles S.W. of Salisbury.

TRAP, in Geology, a class or family of rocks, characterized by the tendency to assume a columnar shape, or to divide into steps forming natural terraces. The name is originally derived from the Swedish word trappa, a step. It was called by Wallerius cornea transeas.

Rocks of the trap family are very extensively spread over the globe, and no question in geology has excited greater attention than that respecting the mode of their formation. The near resemblance which many of these rocks bear to compact lava, the remarkable position in which they frequently occur, the regularity of their structure, and the changes which the rocks in their vicinities have evidendy undergone, induce many geologists to attribute to them an igneous origin; other geologists strenuously contend, that all trap-rocks have been originally formed by deposition from an aqueous fluid. Before detailing the facts in favour of these different hypotheses, it will be proper to describe the rocks which are comprised in the trap-formation. The earlier geologists have frequently applied the term trap indedefinitely to a great variety of rocks, and the distinction made between trap and the rocks which the French mineralogists have denominated cornéens, is extremely vague.

The roche de carné, so frequently mentioned by Saflirius, according to Bronnina is a trap-rock in the Wernerian accep- tion of the term. Werner, according to Mr. Jamfon, reftirms the term trap to rocks principally characterized by the presence of hornblende and black iron-clay; yet the same author informs us, in the following paragraph, that in the oldest or primitive trap, no iron-clay whatever occurs. Jamfon's Mineralogy, vol. ii. p. 129.

The presence of hornblende and fephar, or augite and felpar, would have formed a more accurate and comprehensive definition of the confituents of trap-rocks, or of those rocks which are comprised by Werner in the trap-formation.

M. le Cordier, in an interesting memoir presented to the National Institute in 1815, affirms, that in the trap-rocks which are supposed to be of igneous origin, and in volcanic rocks, hornblende is extremely rare, but its place is supplied by augite, which has been mistaken for hornblende. The constituent parts of these two minerals are the same, and the proportions in which they combine do not greatly vary, so that considerable doubt has existcd whether they should not be classed as the same species, notwith-
The classification of trap-rocks adopted by Werner having been extensively admitted, we shall endeavour to state it as concisely as is consistent with perspicuity. He divides trap-rocks into three formations: primitive trap, transition trap, and the newest felsite trap.

Primitive trap is almost always distinguished by a great predominance of hornblende, so that some of these rocks are entirely composited of this mineral, or nearly so. There are three principal species of primitive trap; common hornblende-rock, hornblende mixed with felspar, and hornblende mixed with mica.

Common hornblende-rock is principally composited of hornblende: it contains two subordinate kinds, granular hornblende-rock and hornblende-flake; the latter differs from the first in having a flaty structure. Hornblende-flake passes sometimes into gneifs, and sometimes into talsum flake. (See Gneiss, and Talcous Slate.) These two kinds of hornblende-rock occur in gneifs and mica-flake, forming beds which are but few in number, and of incon siderable magnitude; but in clay-flake they occur frequently, and in very thick beds.

Hornblende mixed with felspar. This species Werner divides into two subordinate kinds; greenstone and greenstone-flake. The term greenstone (grunfeldian, German) is used by Werner to denote a rock composited of crysftals of felspar and hornblende, and nearly refembling fiente (see Sienite); but in greenstone the hornblende generally predominates, and the felspar is commonly white, whereas in fiente it is red. When the greenstone includes large crystals of felspar, it is denominated porphyritic greenstone. When the granular basal is very fine, it is called greenstone porphyry. According to Mr. Jamefon, this is the black porphyry of the ancients. When the granular nature of the base is no longer visible to the naked eye, it has a blackish green colour, and includes crystals of compact felspar. It is the porphyre vert, or antique green porphyry of sculptors.

Greenstone-flake is composited of hornblende and compact felspar, and has a distinct flaty structure. The felspar is generally more abundant than the hornblende, and it sometimes contains scales of mica. It occurs in great beds and masses in clay-flake.

Hornblende mixed with mica is the third species of primitive trap; it is composited of an intimate mixture of hornblende and felspar, and includes scales of mica. It occurs in beds in gneifs and mica-flake. Jamefon's Mineral. vol. iii.

Transition trap is divided into transition greenstone and transition amygdaloidal; but it does not appear that these rocks have any very distinct character to distinguish them from the greenstone and amygdaloidal of the other trap-formations. According to Mr. Jamefon, transition greenstone is a fine granular mixture of hornblende and felspar; but some of the primitive and flaky greenstones are also denominated by the same geologist as being finely granular. Transition amygdaloidal is stated to have a base of wacke, (see Waaker,) and approaches more or less to the nature of greenstone, sometimes inclining to bafalt, and sometimes to iron-clay.

The vehicles are filled with clay, or with chaledony and agate; it alternates with transition lime-flake.

The newest felsite trap-rocks of Werner comprise green stone, basalt, wacke, porphyry-flake or black-flake porphyry, trap-tuff, greenstone, amygdaloidal, with compact felspar and clay-flake. He also includes pearl-flake, pitch-flake, obsidian, and pumice in this formation of trap. (See the various articles here enumerated.) It is these rocks which Werner calls the newest felsite trap, that pretend the strongest indications of their igneous origin; and some of the substances here enumerated, such as obsidian and pumice, are now generally classed with volcanic products.

Some geologists are of opinion, that there is no foundation in nature for the division of trap-rocks into three distinct formations, introduced by Werner.

There are, however, certain peculiarities of position, which seem to indicate a difference in the mode of formation between the trap-rocks that occur imbedded in other rocks, and those which cover the secondary strata. To form a more distinct idea of this, we must refer to the general structure of the surface of the globe. The beds of rock which form the crust of the globe, are commonly arranged over each other in what is denominated a conformable position, as represented Plate II. Geology, fig. 6, where G is the foundation, or lowest rock, on which the different beds a, b, c, and d are laid, and may be supposed to cover the mountain with a general conformity to the shape of the lower rock. This is more distinctly seen in the same plate (fig. 3.), where the upper beds have the same elevations, depressions, and undulations as those of the lower. The other position in which rocks occur, is called unconformable. "If a thick stream of lava, as frequently happens, were to flow over a range of conformable rocks, filling up the cavities and inequalities of the surface, when it hardens by cooling, it would form a bed of superincumbent unconformable rock. Such infusions are common in volcanic countries. Very extensive ranges of rocks occur in this position in various parts of the world, covering not only the primary, but the secondary rocks. These unconformable rocks, composited of different kinds of trap, porphyry, and felspar, frequently assume the columnar structure, and form vast ranges of natural pillars, as at Staib and many of the Hebrides, on the northern coast of Ireland, and in Iceland, Sicily, and various volcanic countries. Now whatever theory we adopt respecting the formation of unconformable rocks in this position, we must admit that they are of more recent origin than the rocks which they cover; the lower rocks must have been hard and unyielding, when the upper were thrown upon them." Bakewell's Introduction to Geology.

The unconformable position of bafaltic rocks, or rocks of the trap-formation, is represented Plate IV. Geology fig. 2. a, a, a, being a series of regularly stratified rocks, covered by a mass of unconformable bafalt, b. The trap in this position is often divided into different beds, none of which are columnar, as represented at c, and these column beds are frequently separated by beds of compact trap.

Masses of trap also occur, forming perpendicular walls (called dykes in the northern part of England); these intersect the strata and frequently change their position, as represented Plate II. Geology, fig. 8., where a series of strata a, b, c, d, e, f, g, which were once continuous, are broken by a dyke of bafalt. The similar letters on each side of the dyke represent the same stratum, as d, d, c, c, broken by the intervention of the bafalt. In such instances, the strata in the immediate vicinity of the bafalt have undergone a considerable degree of change; and where the stratum c, e is coal, it is frequently found converted into coal.

Vol. XXXVI.
TRAP.

cok, or charred for some distance on each side of the basalt. These walls or dykes of trap are sometimes twenty, thirty, or even a hundred yards or more in thickness, and sometimes range along through very extensive districts; indeed there is reason to believe that many mountains of trap which are arranged in one line along a country, have been originally dykes of enormous magnitude, through which valleys have been excavated by diluvial currents, by partial subidence, and by other agents which have in former ages changed the surface of our present continents. See Veins, Mineral.

Independently of theoretical opinions respecting the formation of trap-rocks, it is obvious that the mafic of unconfomable overlying trap, and also the trap or whin-dyke in dykes, must be of posterior date to the rocks which they cover or interfret; whereas the hornblende-rock or primitive trap which is imbedded in gneifs, mica-flate, or clay-flate, must be coeval with the rocks in which it occurs; and the name is equally obvious with respect to trap-rocks alternating with secondary flata. Trap or basalt sometimes occurs in globular masses composed of concentric spheres, or of prisms of basalt in a radiated diverging form. The spheroidal basalt with concentric layers, frequently includes in its centre a mass of basalt similar to that which envelops it; but sometimes the central mass is of a harder kind, or is a fragment of some other flate, as of shelly lime-flate. Many trap-rocks, in decomposing, present a spheroidal structure which was not before visible in the mafs; and it is observed, that the balls of basalt which fall out or remain when the rock is decomposed, are harder than the main body of the rock. This is the case with the basalt at Rowley in Staffordshire, called Rowley Rag. See Rowley Rag.

The spheroidal structure is however not peculiar to basaltic rocks. Rocks of granite, in decomposing, sometimes present globular masses of harder granite imbedded in the mafs.

In columnar trap we find the columns of all sizes, from a few inches to two hundred and fifty feet in length. The form of the prism or column is also various, and more or less regular, having generally three, four, or five sides; the latter or pentagonal form is the most common. The diameter of the larger columns is frequently four or five feet, or more, and sometimes is nearly equal to the height.

* Rocks of the trap-formation are also frequently observed to form conical mountains, or to occur as detached masses on caps of the summits of other hills, and to occur at nearly the same level as represented Plate IV. Geology, fig. 3. c, d, and e. In such instances, it seems probable that the different caps have originally formed parts of one continuous bed, which has been broken either by the excavation of currents, by subidence of the intermediate parts, or by the elevation of the hills from their primeval position.

The columnar structure and the overlying position so remarkable in trap-rocks, are also common to some kinds of porphyry, and to rhyolite, which are not included by geologists among trap-rocks, but to which they bear a near affinity. To take a jux and enlarged view of this class of rocks, we must leave the minute subdivisions and classifications of cabinet philosophers, and contemplate the natural relations which these rocks have to each other, and the gradations which may be traced between mountain masses possibly great difference in their external appearance. Hornblende or augite forms an essential part of almost all trap-rocks, as well as rocks of undoubted volcanic origin. Now these minerals, though classed by mineralogists as two distinct species, are so nearly alike in their constituent parts, that we may consider them as identical, when they existed in a fluid state in the matter of the rocks of which they form a part. Circumstances of minor import may easily be conceived to have changed the form of their crystals, as we know by experiment the slight causes which occasion varieties of form in the crystalization of the same constituent ingredients in our laboratories. The constituents of hornblende and of augite, are fliex, alumin, lime, magnesia, iron, manganese, and a trace of potash: the proportions of each, which exist in the two minerals, do not vary more than the proportions which exist in substances classed by Hawy with hornblende, or between varieties of the same species in many other minerals.

We may regard then, in a geological view, the constituents of hornblende and augite as forming the same mineral, under whatever crystalline forms they may present themselves in rocks. It is this substance which forms the connecting link between granite, trap-rocks, and lava. Hornblende enters as a constituent part into many rocks of granite. According to Patrin, mafic and veins of granite occur in hornblende-rocks, and mafic and veins of hornblende in granite-rocks, in the Altea mountains. Hornblende is found in some of the granites of the Higher Alps: it exists abundantly in mafs of gneifs, which is only a laminated granite. When the hornblende in granite increases in quantity, the other parts of the mafs remains, the rock is denominated gneifte. When the hornblende gives its colour to the rock, it forms greenstone. When the parts are more intimately mixed, it becomes a compact trap or basalt; and basalt and compact lava bear in many instances a close resemblance as before remarked, to being distinguished. According to the account of Sir George Mackenzie, beds and even columns of basalt frequently occur in Iceland, the lower parts of which are a porous and vitreous lava or flag. The close resemblance between the compact lavas, and the columnar basalt in the vicinity of Etna, and other active volcanoes, so to great, that we believe it is extremely difficult, if not impossible, to distinguish them from each other by any well-defined characters. The currents of lava which have recently flowed, differ indeed from beds of basalt or trap by their porosities; but Cordier has well observed, in the memoir before alluded to, that it is only the superficial part of the upper current of lava that are exposed to our observation; and to judge of their real nature from the external scoria, would be like judging of the contents of a vat of wine, from the froth floating on its surface. The ancient currents of lava are some of them immense size, and have frequently been excavated or broken, by which the internal parts are discovered, and thence, as before remarked, bear a near resemblance to many of the regular rock-formation, and particularly to varieties of trap-rock.

Such being the leading characters in the composition, structure, and position of trap-rocks, we need not be surprised that the earlier geologists were disposed to class them all with volcanic products, and to assert that they had been formed by eruptions from ancient volcanoes, in a manner similar to the formation of modern currents of lava. This hypothesis, advanced before many phenomena attending volcanic eruptions were known, and when the effects of heat combined with pressure had not been investigated, was exposed to many weighty objections. Another theory, which ascribed the formation of trap-rocks to aqueous depositions, was warmly supported by many geologists on the continent, and particularly by M. Werner. He supposes, that after all the primitive and conformable rocks had been deposited, the primeval waters which covered the highest mountains sunk slowly to their present level.

From
TRAP.

From some unknown cause, a sudden rising of the water took place in a turbid and agitated state, and covered the whole globe; it then became calm, and during the period of its settling, deposited the different rocks of overlying trap, and again retired to its former level with considerable rapidity. The broken stratification, so characteristic of this formation, was caused partly by the rapid retiring of the water. The heaps of trees, the beds of clay, sand, and gravel, and their confluent occurrence in the lower part of this formation, are evident proofs (says Mr. Jameson) of the rapid and tumultuous rising of the water. The subjacent calamefs of the water is proved by the finenes of the mechanical and the increasing finenes of the chemical solutions, as we approach the upper part of the formation. Jameson's Mineralogy, vol. iii. p. 85.

According to this theory, the regular ranges of columns so frequent in trap-rocks, were produced by the shrinking in or drying of the mafs. As the inundation was general, the rocks of this family must be spread universally over the globe. Indeed the fame geologist fuppofes there were two inundations, the fift, which depofited the overlying porphory and fennite, the second, which depofited the bafaltic or flets trap-rocks. On this theory, Mr. Bakewell remarks in his Introduction to Geology, "it is fearcely possible for the human mind to invent a fystem more repugnant to existing facts." Were bafaltic rocks, as Werner fuppofes, depofited from an aqueous fluid, that covered the whole globe after the formation of the secondary flarta, every part of the dry land and every valley must have been inundated or filled with bafalt; it would be the prevailing rock of every diftrict: on the contrary, overlying trap or bafalt exifts only in detached mafles, in particular situations, nor do fragments of bafalt occur in any quantity fufficient to warrant the belief that it was ever formed universally over the globe."

Though the mode of aqueous formation, fuppofed by Werner, is utterly inadmissible, we do not think it improbable that many bafaltic rocks may have been formed in the humid way, by eruptions of mud of limited extent, like close which issue at prefent from the volcanoes in South America. The opinion that all bafalt or trap-rocks have originally flowed in the form of lavas, we do not feem authorized, from existing facts, to maintain; and the great altitude given to this mode of formation, has induced other geologists to reject it altogether. But it has been well obferved, that there is a wide difference between afcertaining the agency by which a rock has been formed, and the manner in which that agent has been applied. Numerous observations, which have been recently made on trap-rocks in volcanic countries, have led to the opinion that many of these rocks have been softened, and even fused, in their original position, without ever having flowed as currents of lava.

The principal objections against the agency of fire in the formation of these rocks are enumerated by Brochant. Min. tom. ii. Many of these objections, we think, can be satisfactorily answered.

1. "Bafalts are extremely rare among the products of burning volcanoes, and modern eruptions have not produced any."—This objection is founded on an assumption of facts, which are not admitted by other geologists. The observations of Daubouin in Auvergne, of Sir George Mackenzie in Ireland and the Feroe islands, and of Humboldt in South America, prove that trap-rocks are extensively spread among volcanic products; though, in many instances, they appear to have been formed by the agency of subterraneous fire acting on beds of schilt, which have been melted or softened in their original position, and been subsequently elevated, without ever having flowed as lava. If modern eruptions have produced no bafalts, we may recollect that it is only the external parts or frons that are exposed to our view; and we have no opportunity of examining the currents of subterraneous lavas, formed at great depths under the ocean, in circumstances similar to those which may have attended the formation of bafalts. That many bafaltic rocks were formed under the sea, is evident from their alternating with beds of lime-flone containing marine shells.

2. "Whatever origin may be attributed to the columnar or tabular structure of bafalt, it is not peculiar to trap-rocks: there are gypsums, marls, and sand-flones, which frequently present this structure."—The columnar and globular structure may be formed by the flow refrigeration of a melted mafs of bafalt, as was proved in the experiments of Mr. Gregory Watt. (See Rowley Rag.) The columnar structure has been observed by colonel Imrie in a current of lava which had flowed from a volcano in Feli-cuda, one of the Lipari islands. This current could be traced from the mouth of the volcano to the sea. That the columnar structure may be formed also in rocks of aqueous origin, cannot invalidate the above facts. The particular forms which the columns of bafalt sometimes present, will be subsequently noticed, appear to be the effects of partial fution.

3. "Bafalts often repose immediately on coal, as at Meinfen, near Caife. Now, if this bafalt were volcanic, it muft necessarily have produced the combustion of these beds of coal."—To this objection it will be fufficient to reply, that numerous infinaces may be cited of bafaltic dykes and beds of bafalt having charred the coal in their vicinity, and reduced it to a flate of coke or cinder. (See Veins, Mineral.) And from the experiments of Dr. Maccullock on powdered jet and wood-coal, inclosed in gun-barrels under pressure, it is as certain to confine a considerabe part of the volatile products, it appears that they were converted into true mineral coal by a red heat; and had the confinement, fracture, and every property of pit-coal. Where bafalt in contact with coal has reduced it to a coke, it appears highly probable that the volatile parts have been driven off by heat; and where the coal preserves its true character, the volatile parts have been retained by compression.

4. "The remains of animals and vegetables which are found in some trap-rocks, could not have refided the action of volcanic heat without being destroyed. It is the fame with many very fusible minerals. Some fuch fusible minerals are also found in volcanic rocks; but these infinaces are rare, and cannot serve as a basis for a general rule."—In the experiments of Sir James Hall on lime-flone expofed to heat under comprefion, it was found that chalk, which contained fubflances might be melfed and reduced to a crystalline flate by cooling, without destroying the organic structure of the fhen. Most of the organic remains in bafaltic rocks are in a lofter amygdaloid, or in wacks, which may probably have been formed from eruptions of volcanic mud, like that called pumice, from the South American volcanoes. The fusible fubflances found in bafalt and some volcanic products, there is every reason to believe, affume a distinct crystalline form when the mafs was confolidating.

5. "Cavities filled with water in secondary trap-mountain, oppofe the fuppofition of their igneous origin."—That these cavities have been filled by infiltration is rendered almost certain, from the circumstance that the water may be expelled by a gentle heat; and if the water can find a passage through the flone from the cavity to the surface, it may also find a passage from the surface to the cavity of the mafs.
6. "There are not observed in trap-rocks either that black colour, or those indications of vitrification, that are apparent at least in certain portions of the products of burning volcanoes; real craters have never been observed. All those which have been cited were hollows, chafins filled with water, so common in some mountains."—This is an assumption of facts which recent observations disprove. The basaltic dykes, and beds of basalt contain also in their lower, and sometimes in their upper parts, fiorica; and those indications of vitrification that are apparent in burning volcanoes; and the sides of the basaltic dykes are generally vitrified. That many of the hollows, suppose to have been craters, were hollows formed by depression, is probable; but what other appearance could the crater of an ancient volcano be expected to present, than a hollow or chafin which might be filled with water?

7. "Mandellein (or porous amygdaloid) has certainly some resemblance to porous lava; but there are mandellevins evidently not volcanic. Besides, the cavities in the mandellevins of trap-mountains contain very different minerals, and such as could not have undergone the action of fire, without being changed."—The remarks made previously on very fufible minerals inclosed in basalts, and fome lava, apply equally to this objection. It is also probable that soft and amygdaloidal basalts may have been formed from eruptions of mud, as before flated.

8. "Although from experiments made on basalts and lava, and from observations made on burning volcanoes, it is known that fony substances may, after perfect fusion, refuse their fony character; but when this takes place in burning volcanoes, there are always found in the vicinity lufibilances which are forified or vitrified, and denote some action of fire."—It has been before remarked, that forified and vitrified lufibilances occur in the basalts of Iceland and Ferro; they accompany the basalts in Auvergne, and the vicinity of Etna. In almost all basaltic countries, some of the rocks present fo striking a similarity to volcanic products, that the resemblance has often itrucked the mosl common observer. If other basaltic rocks do not present the fame appearances, it may be owing to their having been formed by submarine eruptions, under circumstances very different from those which take place on land; and it is not contended that all basalts have originally flowed as lava.

9. "In various countries, beds of basalt are observed to alternate with sand-flone and stratified lime-flone."—It is observed in many parts of England and Scotland, and is probably general, that where beds of trap are interposed between sand-flone or lime-flone, they are generally very irregular both with respect to thickness and extent, and have seldom the same uniform arrangement as the stratified rocks with which they alternate. That the lime-flone was formed under the sea, is proved by its containing marine shells; and there is no improbability in the supposition, that currents of submarae lava may have flowed at different periods over beds of shells or sand, and converted the one into lime-flone and the other into sand-flone.

10. "In many basaltic districts, basalt is only found on the summits of hills; and it is evidently perceptible, by the correspondence of the beds, that all these summits were parts of one and the same bed, which passed over all the district. This is not the form of volcanic deposits; they take a certain direction, and no similar indications of such vast volcanic deposits are known."—The frequent occurrence of detached caps of basalt forming the summits of hills, in some basaltic districts, near the same level, constitutes one of the most remarkable peculiarities of the trap or basaltic formation, and deserves particular attention, as marking some of the latest revolutions that have changed the surface of the globe. To form a more distinct idea of the situation of these caps, we refer to Plate IV. Geology, fig. 3, where a mafs of unconfornable trap, a, lies upon the stratified rocks b, and mafs of more recent basalt is formed of other flattened hills at c, d, and e. In some instances, as in the Isle of Skye, as described by Dr. Macculloch (Geological Transactions, vol. iii.), the mafs at a appears to be connected with the lower rock b, and to form a part of it, as if it had broken through the strata, and been thrown over the surface in a flat of fusion. The strata consist of grey lime-flone containing shells; but where the lime-flone is in the vicinity of the trap, it is converted into white crystalline flinty marly. A similar change is produced on chalk, or earthy lime-flone, where subjected to heat under pressure, as was proved in a series of experiments made by Sir James Hall; and as we are unacquainted with any other cause which could produce this change, it appears probable that the lime-flone has been converted into marble by subterraneous heat, and that the trap has flowed over the surface like lava, but under the pressure of the ocean; the existence of marine shells in the lime-flone proving that such must have been its original situation. The caulis which have changed the relative level of the lime-flone, with respect to the sea, may have broken the continuity of the strata, and of the basalt which lies upon them. The basaltic mountains of Auvergne, in the departments of Port-de-Pom and Cantal, in France, have excited much attention from the existence of ancient volcanic craters in their vicinity. According to Dauquillon, the fundamental rock of that district is granite, covered in some places with a marly lime-flone. Nearly all the soil is covered with volcanic or igneous productions; they are of three kinds, and appear to have been formed at three distinct epochs. The most recent are currents of lava, which lead to craters still existing, though dormant. The second formation consists of mafs or tables of basalt, separated by openings or valleys. The third consists of mountains composed of a kind of volcanic porphyry. The currents of lava are observed to have run from the bottom of a number of conical hills, from two hundred to four hundred yards in height. These hills, of which there are about one hundred, are formed of heaps of scoriæ, fragments of lava, and rapilo or tufa. Their summit often presents a hollow in the form of a crater; they rest immediately upon granite. The lava at the bottom is of a basaltic nature; it is of a greyish-black colour, with a fine compact grain; it contains grains of augite, olivine, and felspar. The superfcies is bilttered and fluided with apertures, which sometimes exceed a yard in height. The interior is more compact. The currents are spread in the adjacent plain; they have sometimes reached the bottom of certain valleys, and have followed their course for three or four leagues. In advancing progressively, they always descend to lower elevations; they follow the inequalities of the soil; and separate on meeting with any obstructing eminences in their passage. The history of these currents of lava, says M. Dauquillon, is complete, and there is nothing left for the imagination to supply. We behold the orifice from which they flowed, the course they pursued, and the course they occupy. As for the period when these lakes flowed, though anterior to the history of man, it is none the less recent, compared with those vast changes which the surface of the globe presents, and was posterior to the excavation of the valleys, since it flowed through them, and occupied their bottoms.
The igneous productions of the second kind are basalts, which in the form of beds, tabular masses, or peaks, cover the elevated parts of the ancient surface of the country, or occur on the summits of some mountains and isolated eminences. They are also observed on the skirting round the sides of Mont Dor and Cantal. They are, says M. Daubuisson, evidently only the remains and patches of different currents which have spread over the country: they present the same mineralogical characters as the basalts of Saxony, and other districts; they contain the same fusibles, and have the same tendency to form regular prisms or columns; they cover, without distinction, all kinds of rocks, and are never covered by them. An igneous origin cannot be denied to these basalts; the perfect resemblance between their pseil and that of some of the currents of lava in their vicinity, which can be traced to existing craters, affords a strong presumption of this; but they present other infallible marks of their origin. In following step by step certain masses of basalt, which are near Mont Dor and Cantal, and supplying by imagination what has been taken away, where their continuity is broken, you arrive at the sides of these two enormous volcanic mountains, and we come to masses of fioro re or of blistered rocks, where beyond doubt we are near the current; all the basalts which have been traced upwards made part of that current. A great number of these large basaltic platforms, which cover isolated mountains, display on their surface blisters, fpongy fcorie or droffes, like those which cover the belt preferred lavas; nor can we refute them a similar origin. Some of these platforms repose on volcanic ashes. It is true, some isolated eminences have summits of compact prismatic basalt of a black colour, and definite of those unequivocal signs of the action of fire which are seen elsewhere; but these eminences of compact basalt most frequently stand by the side of those platforms with scoriated surfaces, before described: they once formed with them a continued whole, and have evidently been divided from them by the excavation of the ravines and valleys which now separate them. They cannot have had a different origin. The convulsive action of time and the elements must have destroyed the incised crat: only the compact nucleus remains, deprived of the marks of the action of fire, like the interior parts of most currents of lava, which are equally diffusive of such marks. Thus, says M. Daubuisson, all the basalts of Auvergne present proofs either direct or indirect of an igneous origin; though the disintegration of the surface, and the disarrangement that the currents have suffered, prevent us from retracing them to the crater from whence they flowed, and from seeing the number, form, and extent of the different currents; but we are certain that their existence was anterior to the excavation of the valleys.

The porphyroidal trap is the third kind of igneous rock-formation in Auvergne. It forms eight or ten distinct mountains: the most considerable are Mont Dor, Cantal, and Puy-de-Dôme. The fusibility of these mountains, from the account of Daubuisson, appears to be a kind of felspar or chink-folone porphyry: their pseilage, direct or indirect, into basalt, and, above all, the volcanic fioro imbedded in their mass, prove that they owe their existence to fire. These porphyries are the most ancient of the igneous productions of Auvergne; they are covered with basalt, and contain veins of that fusibility.

In the opinion of some geologists, these mountains and masses of porphyry have never flowed as lava, but have been fused in their native beds, and subsequently elevated. The homogeneity of their palse shows how complete the fusion has been. The crysals of felspar were, in all probability, formed during the igneous fluidity of the mass. However different the currents of lava, the basalt, and the porphyritic trap may be, and however various the periods of their formation, they appear, says M. Daubuisson, to be united in a certain degree. Cantal, Mont Dor, Puy-de-Dôme, and the other porphyry mountains, are ranged in a direct line running nearly from north to south. Almost all the basalts of these regions, that can be, in some manner, retraced to their origin, seem to have taken their direction in the same line. It is also in this direction, and among the ancient products, that the greater part of the craters have been opened whose vestiges are still visible. When, at two leagues to the westward of Clermont, we see near forty volcanic mountains ranged in a straight line, it can scarcely be believed to be the effect of chance. A cause has certainly existed, which has produced this effect. Perhaps, says Daubuisson, there was in this direction a vein of matter that contained the germ of volcanic fire, which burnt forth and was renewed at different periods.

Perhaps this range of mountains may be regarded as an enormous basaltic dyke, which has broken through the crust of the globe along the line where they are now ranged, their continuity having been broken by partial subidence, and by diluvial currents. Daubuisson's account of the trap-rocks or basalt of Auvergne is particularly interesting, as establishing the intimate connection between trap-rocks and those of undoubted igneous origin. It is further remarkable, as M. Daubuisson had previously published an account of the basalts of Saxony, in which he endeavoured to prove the aqueous formation of basaltic rocks.

The most remarkable trap-formation in Europe, and perhaps in the world, extends from the county of Antrim, in Ireland, through part of the Scotch Hebrides, and is probably the same which occurs in the Ferroö islands, and the island of Iceland. An account of the columnar basalt of this formation will be found under the articles Giant's Causeway, and Staffa. The geological relations of the trap-rocks of Antrim with the regular strata in that country, have been recently traced by the Rev. J. Connycare and Dr. Berger. The basalt of this district generally covers chalk, similar to the chalk on the eastern side of England, and like it reposing upon beds of sand, and the grey stratified limestone called ?as. In England we have no instance of basalt occurring above the chalk, or of the strata over the basalt, or in the basalt itself, though it occurs in the coal-formation under the basalt. A fine fection of the beds of basalt with the chalk, sandstone, lias, and coal-strata, may be seen for many miles along the coast, presenting numerous dykes and fractures of the strata, which have sometimes brought the basalt to the same level with the chalk, and in other situations with the coal-strata. The basalt in the interior, and in some parts of the coast, forms isolated caps on the summits of detached conical hills. The existence of these isolated caps has been attributed to diluvial currents, which have cut through the once continuous beds of basalt. Though such currents have doubtless existed in various situations, and have excavated valleys, another agent has obviously been employed in the formation of the valleys of Antrim. We have only to examine the coast to convince ourselves of this fact, where we may see the basalt suddenly thrown down or elevated several hundred feet, by mineral veins or dykes filled with basalt. If we trace in imagination the same displacement into the interior, where it obviously extends, we shall see a sufficient cause for the existence of isolated caps or beds of basalt, separated from each other by valleys, or lower grounds, that have been formed by subidence. Through these veins or dykes the basalt itself was probably
probably thrown up, and spread over the surface in a fluid state. Wherever these dykes pass through the chalk, they have converted it into crystalline lime-flour to a certain distance on each side, and produced various appearances, which tend further to prove that the matter of the basalt has been in a state of igneous fusion. See Veins, Mineral.

That the basalt has been forced through the chalk and the other strata on which it now rests, is rendered almost certain, by the occurrence of broken flints of chalk enveloped in the basalt, and contorted in a manner which proves the violence of the disintegrate, the upheaving of the basalt, and the lateral pressure to which the chalk-strata have been subjected. See Plate IV. Geology, fig. 4.

One remarkable feature in the arrangement of the basaltic columns in Antrim must not be overlooked. The great ranges of columns are nearly vertical, but the columns of basalt in the mineral dykes are arranged horizontally. This difference of poise may admit of a probable solution, if we allow that the basalt, in both instances, had been in a state of igneous fusion. The beds of columnar basalt being thrown over the surface of the ground that formed the bed of the ocean, would begin to refract at the upper and under side in a vertical direction. On the contrary, in mineral dykes intersecting rocks already formed, the basalt would suffer refrigeration more rapidly where it was in contact with them, which would be on the sides, and this refrigeration would gradually extend to the interior, in a horizontal direction: and to this difference in the mode of their condensation, we may ascribe the horizontal or vertical position of the columns in the beds and dykes of basalt. For an account of the experiments of M. G. Watt and Sir James Hall on the fusion of basalt and lava, see Rowley Rag, and Volcano.

Trap-Holes, in Rural Economy, a term applied to a round hole, which is cut out and prepared in the floors of the flowage-rooms, where hops are deposited after being dried, for the purpose and convenience of bagging them. It is formed exactly equal in size to the mouth or opening of the bag, around which a wooden frame is securely placed and fixed, to the edge of which, the border of the mouth of the bag is firmly attached all round. By this means the hops are readily forced into the bags in a close compact manner.

The term is also occasionally applied to other holes cut and formed in the floors of farm-buildings.

Traps, Garden, such as are contrived for the purpose of destroying mice and other vermin; which are often conveyed into such places with the straw, litter, and other matters that are made use of in them; and which are extremely hurtful and troublesome in the spring season, in destroying peas and beans, as well as lettuces, melons, and cucumbers in frames.

Traps for this purpose are contrived in a great many ways; but as field vermin are very shy, and will rarely enter traps which are close, the following simple cheap form has been advised by Mr. Forthly, though it has nothing of novelty in it. These traps may be made by stringing garden-beans on a piece of fine pack-thread, in the manner of beads, and then driving two small flake-like pieces of wood into the ground at the breadth of a brick from each other, and setting up a brick, flat stone, or board with a weight on it, inclining to an angle of about forty-five degrees; tying the string with the beans on it, round the brick or other substances and flakes, to support them in their inclining position, being careful to place all the beans on the under side of the bricks or other matters. The mice in eating the beans, in such cafes, will also destroy the pack-thread, and by such means disengage the brick or other weighty body, which, by falling on them readily destroys them. Mice are always the first to rid of by some sort of simple open traps of this nature.

TRAPA, in Botany, a Linnaean name, whose idea is certainly taken from the warlike instrument called Caltop, the Tribus of the ancients, with confluent of four iron radiating spikes, to placed that one of them might always stand upwards, in order to wound the feet of passengers. Such is the figure of the figurative fruit of this genus, hence named by Tournefort Tribuloides. Calicrappa, an old botanical word of similar meaning to Tribulhus, is compounded perhaps of calceo, to tread, or kick, and Tribulhus, to turn, because the Caltops are continually kicked over if they fail of their intended mischief. Here we have the immediate origin of Tropa.—Linn. Gen. 62. Schreb. 84. Willd. Sp. Pl. v. 1. 681. Mart. MILL. Dict. v. 4. Ait. Hort. Kew. v. 1. 267. Sm. Prodr. Fl. Græc. Sibith. v. 1. 104. Juss. 68. Lamarck Illuir. t. 75. Genr. t. 26. and 95. (Tribuloides ; Tourn. t. 431.)—Clads and order, Tetrandria Monogynia. Nat. Ord. Inundate, Linn.? Hydrocharides, Juff. or rather, as that author himself indicates, his Onagra.

Gen. Ch. Cali. Perianth superior, of four acute, equal, permanent leaves, firmly united to the sides of the germen. Cor. Petals four, obovate, larger than the calyx. Stam. Filaments four, the length of the calyx; anthers simple. Fil. Germen turbinate, crowned by the calyx, of two cells; style simple, as long as the calyx; stigma capitate, emarginate. Peric. None. Seed. Nut turbinate, more or less compressed, of one cell, armed with two or four horn-like protuberances, originating in the permanent calyx, thickened, either spiny or blunted. Kernel solitary.

Eff. Ch. Corolla of four petals. Calyx of four leaves. Nut armed with two or four opposite horns, originating in the leaves of the calyx.

T. natans, European Water-caltops. Linn. Sp. Pl. 175. Suppl. 128. Willd. n. 1. Ait. n. 1. Prodr. Fl. Græc. n. 1. Genr. t. 26. (T. aquaticus; Camer. Epit. 715. Matth. Valgr. v. 2. 324. Ger. Em. 824.)—Nuts with four spiny ascending horns.—Native of ponds and mucky ditches in the south of Europe, flowering in summer. The plant is annual, and has several times been brought into England; but whether its seeds are not perfected here, or from any other cause, it has never yet been naturalized. The ponds at Verailles abound with this Tropa. The foliary fibrous root sends up a long, cylindirical, floating stem, varying in length according to the depth of the water, furnished with numerous, opposite, pectinated tufts of fibrous radicles, gradually diminishing to simple fibres, and at the top of the stem, which is thickened, these fibres are replaced by alternate flaked leaves, which are crowded at the summit into a large spreading flat, floating on the surface of the pool, and often ten or twelve inches in diameter. Each leaf is rhomboid, fusculent, an inch or more in breadth, veiny; strongly toothed in front; entire at the base; the veins rather hairy underneath. Footstalks three or four times as long as the leaves, smooth, swelling beyond the middle into an elliptical cellular body, rendering the plant more buoyant. Flowers small, white, on short, club-shaped, axillary, simple, partly hairy stalks, fearfully half an inch long. Nuts turbinate, about an inch in diameter, angular, smooth, with four, by accident only two or three, prominent ascending pointed horns, becoming lateral by the increase of the summit of the germen, two of them situated at the angles of the nut, two lower down at the sides. The kernel inedible, somewhat like a chestnut. This plant is doublets the τραπάζοι, κόρες of Dioscorides, found by Dr. Shibthorp in countries bordering
TRAPA

on the north of Greece, though not in that country itself, nor the neighbouring islands. The wooden cut of Camerarius, executed, we believe, under Conrad Gesner's inspection, is one of the best representations of any known plant. — Linneus miftook the radicles for submerged foliages, like that of Myriophyllum.

2. T. bicorns.—Chinese Water-caltrops. Linn. Suppl. 128. Willd. n. 2. Ait. n. 2. Gartn. t. 95. Obbeck's Voyage, Eng. ed. v. 1. 356. (Bocephon; Burm. in Plum. l. 56. t. 67, at the bottom. Linkoa, Ling-kann, or Leng-ka, of the Chinese.)—Nuts compressed, with two opposite deflected horns. —Native of ponds in China. Some of its nuts were procured by Sir Joseph Banks, in bottles of water, from China. These beingimmered in mud at the bottom of some tubs of water at Kew, as well as in Mr. Lodiges' floré at Hackney, vegetated, and produced plants hardly distinguishable, in any respect, from the foregoing, of which we obtained specimens, from the ciltersn at Kew, in October 1790. These had the shell of the parent nut at their root, so that no deception could take place. This nut is very different from the former, being twice as large, much compressed, with two large, divericated, recurved, opposite horns, more or less pointed, which could hardly be supposed to have originated from the calyx. We know nothing of the flowers of this species, nor are we perfuaded of its existence at present in the English gardens. Mr. Aiton indeed marks it as a perennial greenhouse plant, but not as having flowered; and we presume, with deference to his well-known accuracy, that it perished as an annual, without flowering; we have never heard of it since the firft feafon. One of our specimens has several flens from a fingle root, which may possibly be the cafe with T. natans occasionally. Gartner's figure is different from Burmann's, and from our Kew specimen, in the bluntnefs of its horns. We have a specimen like it, from China or the East Indies, and are not without a fufpicion that it may belong to a third species, whose herbage is, as yet, unknown to botanists.

TRAPANI, in Geography, a fcap-port town of Sicily, in the valley of Mazara, fixuated on a peninsula, with a good harbour, defended by a fort, which flands on a small island, called Colombara. This town was anciently called Drepanium, from the similitude its haven is thought to have borne to a fickle. It is ancient, and, according to Virgil, existed in the time of Enneas. According to Diodorus, it was fortified in the firft Punic war by Hamilcar, the father of Hannibal. The Carthaginians were always defirous of poifefling this city on account of its harbour. Here is a good pearl-fifhery on the coast, and in the neighbourhood a confiderable falt-work. The number of inhabitants is about 20,000; 43 miles W.S.W. of Palermo. N. lat. 38° 5'. E. long. 12° 30'.

TRAPESO, in Commerces, a weight in Malta, Sicily, and Naples. At Malta, gold and filver are weighed by the libra or pound of 12 ounces. The ounce is divided into 16 parts, or into 32 trapesii, and the trapeso into 18 grains. This pound weighs 4888 English grains: and thus 720 lbs. or ounces of Malta = 611 lbs. or ounces Troy. At Naples, gold and filver are weighed by the libra of 12 ounces, the ounce being fhdivided into 30 trapesii, and the trapeso into 20 acini. The pound of Naples weighs 4950 Troy grains; hence 64 lbs. or ounces = 55 lbs. or ounces Troy weight.

TRAPEZA, in Ancient Geography, a promontory of Afa Minor, in the Troade, at the entrance of the Hellespont, and 18 miles from the small town of Dardanum. Phily.

TRAPEZOIDES, in Anatomy, bones of the carpus. See Extremities.

TRAPEZIUS, in Anatomy, (cucullaris, dorso-fus-acromien,) a broad and flattened muscle, of triangular shape, describing with that of the opposite side the lozenge figure, wherein its name is derived, situated on the posterior surface of the neck and back, and reaching from the head and vertebral column to the scapula and clavicle. Its line of origin is very long. It arises, by a thin aponeurosis, from the occipital tuberclity, and the external transverse ridge of the bone; from the ligamentum nuchae in its whole length; from the spinous process of the last cervical vertebra; from the spines of all the dorsal vertebrae, and the intervening interpinel ligaments, by means of short aponeurotic fibres, except from the sixth cervical to the third dorsal vertebra inclusively, where these fibres are much longer, and form a broad femioval aponeurosis. At the lower part too, the origin of the trapezius presents an aponeurosis of some breadth. The muscular fibres pursue various directions: the superior, which are the thinnest, descend; the middle ones pass horizontally; and the inferior ones ascend: the two latter portions are much thicker than the upper. The middle fibres are the shortest, the upper and lower considerably longer. The fibres converge towards the shoulder, and form a flat aponeurosis, which, having passed over the smooth triangular space at the root of the spine of the scapula, is fixed to the superior margin of that process in its whole length, to the superior margin of the acromion, to the ligaments of the scapulo-clavicular joint, and to one third of the posterior edge of the clavicle. Numerous fleshy fibres are inserted, with aponeurotic ones, in the acromion and clavicle.

The posterior flat surface of the trapezius is every where subcutaneous; the cellular subfubance between it and the skin does not contain much fat, particularly about the neck. Its anterior surface covers the complexus, sphenius, levator scapula, serratus superior pollicus, supraspinatus, rhomboideus, the triangular surface at the root of the scapular spine, the infraspinatus, latissimus dorsi, and a small portion of the long and back muscles are oblire: the former from the occiput to the clavicle, the latter from the last dorsal vertebra to the scapula.

The trapezius carries the shoulder backwards, at the fame time making the scapula rotate, so as to turn its inferior angle forwards, and the superior backwards. In this way the shoulder is elevated, as in supporting a burden. If the levator scapula acts with it, the scapula is moved directly upwards: if the rhomboideus, directly backwards. When the shoulder is fixed, it will extend the head, and incline it, with the trunk, to one side.

TRAPEZOJOID, in Geometry, a plane irregular figure, having four fides, no two of which are parallel to each other.

TRAPEZOPOLIS, in Ancient Geography, a town of Afa Minor, in the interior of Caria. Ptolemy.

TRAPEZUNTINA LABIES, a name used by some botanical authors for the laurel-leaves, or common laurel.

TRAPEZUNTIUS, in Biography. See George of Trebizond.

TRAPEZUS, TREBIZONDES, in Ancient Geography, a populous town of Greece, E. of Pontus, and on the coast of the Euxine sea. It was a colony of Sinope. In the
TRAPPE, Monks of La, in Ecclesiastical History, monks of the Cistercian order, belonging to an abbey beautifully situated on a large valley in the province of Le Perche, on the confines of Normandy, in France. The abbey was founded in 1140 by Rotrou, count of Perche, and dedicated under the name of the Blessed Virgin. That this abbey was subjected to a very rigorous discipline by the Abbé de Rance, in 1664. Encyclop.

TRAPPINGS. Among the ancients, some will have the horsetrappings to have been placed on their breasts; others, on their forehead; and others, again, on their cheeks; that on the breast was a small kind of shield, finely polished.

TRAPRAIN LAW, in Geography, a mountain of Scotland, in the county of Haddington; 4 miles E. of Haddington.

TRAPS, The, a town of Pennsylvania; 26 miles N.W. of Philadelphia.

TRAPSALO, in Zoology, a name given by the Greeks in the Levant to a species or variety of Calamary, or Stella Loligo (which see), called by the Provençals Arugi. It resembles the common calamary, but differs from it by the extraordinary size of its eyes, by a less extent of fins, by its feet having a greater number of smaller bony points to their cartilaginous tubercles, by a less length of the back-bone, by the gills having a smaller quantity of black liquor, and by its becoming very large. The Greeks are of opinion, that their trapalo is only the calamary changed by age. The ariughi approaches the coast more frequently than the calamary; it often comes on the sand in the shore, and there deposits its eggs, whereas the calamary never goes on land. The flesh is better and less difficult of digestion; but their eggs have a slight purgative property, from which no bad effects are felt. It is considered as a presage of a tempest, when the calamaries dart out of the water. Somnini's Greece, p. 128.

TRAPTOWN, in Geography, a town of Maryland; 7 miles S.W. of Fredericktown.

TRAQUAIR, or TRÉ-QUAIR, a parish in the shire of Peebles, Scotland, on the southern bank of the Tweed, is watered by the river Quair, which has its rise and its whole course in the parish to which it communicated its name; Tre-Quair signifying a dwelling on the Quair. The present parish is composed of the old parish of Traquair, with that half of the ancient parish of Kailzie, which lies on the south side of the Tweed, and to which it was annexed in the year 1674. Its greatest length from E. to W. is about nine miles; its greatest breadth, from the Tweed to the source of the Quair, is from four to five miles; the whole contains 17,290 acres, of which about 4000 are arable. The surface is rocky and mountainous. Minnoch, one of the hills, is upwards of 2000 feet above the level of the sea; and Gumfleugh and some other heights are elevated above 200 feet more. The hills, in general, afford excellent pastures for sheep, of which there are above 10,000 in the parish. The soil in the low grounds is shallow and fotty, but tolerably fertile; and the air salubrious. In the population return of the year 1811, the number of inhabitants was stated to be 621, occupying 102 houses. The church was rebuilt in the year 1785. A parochial school is established, with a salary of 300 marks and perquisites, a free house and garden. Traquair House, the residence of that branch of the Stewart family who derive the title of earl from this parish, is seated on the bank of the Tweed; and on the side of a hill, which overlooks the lawn, are the remains of “The Buil aboon Traquair,” celebrated in ancient melodies, and probably in former times a considerable thicket, but now reduced to five solitary thorn-trees. Part of the mansion is of very remote antiquity.
antiquity; and was built in the castellated form. There have been several other tower-houses in the parish, one of which is still almost entire at Cardrona. Several places, denominated chelors, exhibit evident marks of lines of circumvallation, and are more or less circular, and seem rather to have been intended to secure cattle against sudden incursions, than for regular encampments; though tradition dignifies them by the appellation of Roman camps: they are all constructed upon the summits of eminences not easily afforded. At the commencement of the Scoto-Saxon period, the Scottish kings possessed the forest of Traquair, with a castle on the site, which is formed by the junction of the Quair with the Tweed. The first mention of it on record, is in the reign of David I., from whose time, till the death of Alexander III., the castle was occasionally the royal residence. Traquair was then a considerable village, which had arisen under the shelter of the castle, and appears to have been more opulent and populous than Peebles itself; but is now very much reduced.—Carlisle's Topographical Dictionary of Scotland. Beauties of Scotland, vol. ii. Chalmers' Caledonia, 4to. 1810.

TRAQUATUHA, a town of Brablia, on the river of the Amazon, 330 miles W. of Fort Rio Negro.

TRAQUENADE, in the Mange. See ENTREPAS.

TRARA, in Geography, a range of mountains in Algiers; 6 miles E. of Twint.

TRASCALETA, a town of Spain, in the province of Galicia; 16 miles S.E. of Lugo.

TRASCINA, in Ichthyology, a name by which some authors have called the fish more usually known by the names of draco marinus, and aranurus.

TRASSEN, in Geography, a river of Germany, which rises in the Se of Austria, passes by Marktl, Lillenfeld, Wilhelmsburg, St. Polten, &c., and runs to the Danube, 8 miles below Mautern.

TRASIMENUS LACUS, or the Lake of Trajanus, in Ancient Geography, a lake of Italy, towards Etruria, S.E. of Cortona: famous for the battle called after its name, in which Hannibal, in the year of Rome 536, defeated the Romans under Flaminius; 15,000 Romans having been killed, 10,000 put to flight, and 1500 having died of their wounds.

TRASKIRCHEN, or Draskirchen, in Geography, a town of Austria; 3 miles E.N.E. of Baden.

TRASMAUR, a town of Austria, on the Tracen, with a citadel; it belonged to the archiepiscopal of Salzburg; 12 miles W. of Tulln.

TRASOS-MONTES, or TRASOS-MONTEs, a province of Portugal, bounded on the N. and E. by Spain; on the S. by Beira, from which it is separated by the Duero; and on the W. by Entre Duero e Minho. It receives its name from its position, with respect to the province of Entre e Minho, lying on the other side of the mountain of Marao. In extent from N. to S. it is 70 miles, and from E. to W. about 50, being for the most part mountainous. It is wild, barren, and thinly inhabited, though blessed with fertile and delightful vales, which produce rye, wheat, wine, and fruits: besides the Duero, it is watered by the small rivers of Tamega, Corgo, Tuela, and Sobor, which run all into the Duero. It contains two cidades or cities, and 57 villas or towns; according to De Lima's bill, 549 parishes, in which, in the year 1732, were computed 135,864 souls.

TRAVI, a citadel and lordship in the Engadine, on the borders of Tyrol, with a small garrison in it; 27 miles N. of Bormio.

TRAW, TRATOW, a town of the duchy of Holstein; 6 miles S. of Segeborg.

TRATTINICKIA, in Botany, is so called by Willdenow, in honour of a Vienna botanist named Trattinick. The name of Leopold Trattinick occurs in Mr. Dryander's Bibl. Bankf. v. 3. 642, 648, and 654, as the author of some botanical treatises in German. Perfon, it appears from Pursh 519, has a Trattinickia, which is MARSHALLIA of Pursh, after Schreber. (See that article.) We must premuse Willdenow to be most correct in the above orthography. — Willd. Sp. Pl. v. 4. 975. — Clafs and order, Polygamia Monocotyl., Willd.; rather Pentandra Monogynia. Nat. Ord. Terentaceous. Juffi.

Gen. Ch. Cal. Perianth inferior, of one leaf, hairy, bell-shaped, with three teeth. Cor. of one petal, bell-shaped, longer than the calyx, with three flight teeth, somewhat hairy at its outside. Stam. Filaments five, awl-shaped, very short, inserted into the receptacle; anthers oblong, erect. Pist. German ovate, superior; style awl-shaped, the length of the filaments; stigma simplex. Fruit unknown.

Obs. There are some flowers male only, having merely a short style, without any germen. But we cannot for that reason admit the genus into Polygamia, there appearing to be no difference of structure in the other parts of the flowers.


1. T. rhoifolia. Sumach-leaved Trattinickia. Willd. n. 1.—Found in the province of Para, in Brafl, by count Hoffmann-egg, who communicated a dried specimen to professor Willdenow. — A large and very handsome tree, whose ultimate branches are striated and smooth, as thick as the little finger. Leaves alternate, stalked, pinnate, two feet long, composed of seven pair of opposite leaves, with an odd one, which are stalked, four or five inches in length, oblong, pointed, entire, rigid, rough on both sides, veiny; somewhat heart-shaped at the base. The common fruit is semi-cylindrical and striated; partial ones half an inch long, corrugated. Stigmas lacerate, an inch long, rough with hairs, deciduous. Panicle terminal, spreading, compound, flowers white, feathery, in little round tufts. The panicle ends in a pointed bud, expanding into a branch after the flowering is over, so that the branches of the panicle subsequefly become lateral. The habit of this plant most resembles Canarium, though the genus is unquestionably distinct. Will.

TRATUZ, in Geography, a town of European Turkey, in Moldavia; 49 miles S. of Niametz.

TRAU, or Tragan, a town of Dalmatia, pleasantly situated on a piece of land, which was formerly a peninsula, but now separated from the continent by a canal cut through. It is divided into the New and Old; the latter of which has a double, the former only a single wall, and defended by three towers. The harbour, which is formed by a bay, has depth of water enough for the largest ships, which ride there sheltered by two capes. It abounds also in fish, particularly fine fardines. It was an ancient Roman colony of the emperor Claudius; and so early as the year 937, put itself under the protection of Venice; on which it has been continually dependent ever since the year 1425, though without any changes and disfarous revolutions. Vine's, olives, fags, and almonds are cultivated here, and some corn, which however is not the richest produce of these parts. The internal part of the territory of Trau, which
is about 100 miles in circuit, on the continent, produces very little wine, and scarcely any oil. The flocks that feed there, together with those on the island under the same jurisdiction, yield about 400,000 pounds of cheese, and wool in proportion. The number of inhabitants in this territory is about 20,000; 12 miles W. of Spalatro. N. lat. 43° 30'. E. long. 16° 30'.

TRAV, a bay on the S.W. coast of Tries, one of the Western islands of Scotland. N. lat. 56° 31'. W. long. 6° 48'.

TRAVAY, or TRAVENEBURG, a town and castle of Germany, in the circle of Swabia, which gives name to a small county situated to the S.W. of the territory of Kempen; 12 miles E. of Wangen.

TRAVE, a river of Germany, which rises from a lake in the duchy of Holstein, 2 miles W. of Arensbuck, passes by Oldeelhohe, Lubeck, &c. and runs into the Baltic, about 10 miles N.E. of Lubeck. N. lat. 54°. E. long. 10° 55'.

TRAVE, in Agriculture, a term applied, in some districts, as Erica, to a large fort of flould of the wheat kind. In the work of traving, fourteen sheaves are set in a flating position, head to head, across a furrow, and prefixed together as close as may be; a single sheaf being then firmly placed in the furrow against each end of the trave. The traves are by this means made quite secure, solid, and compact, and may defy almost any force and violence of the wind. In some cases, instead of placing sheaves at the ends in this way, they are laid along the top or ridge of the trave; which, without doubt, at once better preserves the trave from the rain and wet, and gives a freer passage to the air between the sheaves, and sooner dries them, in case of their having been thoroughly soaked with rain; but then they are not nearly so strong to withstand powerful storms and blasts of wind as in the other mode of constructing them. See Harvesting.

TRAVE, among Farriers, the name with travece.

TRAVELLER, in a Ship, a fort of thimble, whose diameter is much longer, in proportion to the breadth of its surface, than the common ones. It is furnished with a tail formed of a piece of rope, about three feet in length, one end of which encircles the ring to which it is spliced. These machines are principally intended to facilitate the hoisting or lowering of the top-gallant-yards at sea; for which purpose, two of them are fixed on each back-flay, whereon they slide upwards and downwards, like the ring of a curtain upon its rod; being thus attached to the extremities of the top-gallant-yard, they prevent it from swinging backwards and forwards, by the agitation of the ship, whhilst the yard is hoisting or lowering at sea. Falconer.

TRAVELLER'S JAY, in Botany. See Clemathis.

TRAVEMUNDE, in Geography, a sea-port of the duchy of Holstein, on the Baltic, at the mouth of the Trave, belonging to the city of Lubeck, which appoints a governor or commandant. The harbour is capable of containing 60 vessels, and deep enough for those of 200 tons. Men of war ride at anchor in the road. Travemunde is defended by a small fort, mounting 40 guns, and a garrison of 50 men; 8 miles N.E. of Lubeck. N. lat. 54°. E. long. 10° 51'.

TRAVENDAL, a town of Holstein, on the Trave; 2 miles S.W. of Segeborg.

TRAVERON, a town of France, in the department of the Meuse; 10 miles E. of Gondrecourt.

TRAVERS, John, in Biography, a musician brought up in St. George's chapel at Windsor, and afterwards bound apprentice to Dr. Greene, about the year 1730, was elected organist of St. Paul's Covent-Garden; and in 1737, on the death of Jonathan Martin, was appointed one of the organists of the king's chapel. He afterwards attached himself to Dr. Pepusch, and confined his studies solely to the correct, dry, and facile style of that master. His compositions, however pure the harmony, can only be ranked with pieces of mechanism, which labour alone may produce, without the assistance of genius.
His passion for fugues, reminiscent of an inveterate punster, who never hears a phrase or sentiment uttered in conversation, without considering what quibble or pun it will unfit: to Travers seems never to have been or heard any sort of sounds, without trying to form them into a fugue, and meditating when and where the answer might be brought in.

**Travers**, in Geography, a town of the county of Neufchâtel; 11 miles W. of Neufchâtel.

**Traverse**, or Transverse, something that goes athwart another, i.e. so as to cross or cut it obliquely.

**Traverse** is particularly used for a piece of wood or iron placed transversely, to strengthen and fortify another: such are those used in gates, windows, &c.

To plane a board against the grain, is also called, among joiners, &c. to traverse it.

**Traverse**, in Gunnery, signifies to turn or point a piece of ordnance, which way one pleases, upon her platform.

The laying or removing of a piece of ordnance, or a great gun, in order to bring it to bear, or lie level with the mark, is also called *traversing the piece*. See GUNNERY.

**Traverse**, in Fortification, denotes a trench with a little parapet, sometimes two, one on each side, to serve as a cover from the enemy that might come in flank. See GLACIS, and Plate V. Fortification, fig. 6, in which **w**, **v** represent traverses, constructed at the extremities of the places of arms, which serve to enclose them: these traverses are three toises thick, and as long as the covert-way is broad; and a paffage is cut in the glacis round them of about fix or eight, in order to have a free communication with the rest of the covert-way. There are also traverses of the fame dimensions before every fahiant angle of the battalion and outworks, and they in the fame direction of the faces of those works produced; and the thickness lies at the fame fide as the parapets. The paffages round these falt traverses are from fix to eight feet wide. The fcond covert-way has also traverses every where, in the fame manner as the firl.

Traverses are sometimes covered over-head with planks, and loaded with earth. Each traverse is furnifhcd with a foot-bank, and a row of palisades planted on the foot-bank; and the paffage round its end fhould be furnifhed with klinquets, or doors, to shut them up when neceffary. They are very commodious for ftopping an enemy's way, and to prevent being enfilded; they likewise make a good defence, in a dry fols, in making the parapet on the fide next the opposite flank.

**Traverse**, in a word *fols*, is a fort of gallery, made by throwing faficles, jofts, fafifnes, flones, earth, and other things, into the fols, over-againit the place where the miner is to be put to the foot, or the wall, in order to fill up the ditch, and make a paffage over it.

**Traverse** also denotes a wall of earth, or flone, raised across a work which is commanded, in order to cover the men.

**Traverse** also signifies any inrenchment, or line fortifified with fafifes, barrels, or bags of earth, or gabions.

**Traverse**, in Navigation, is the variation or alteration of a ship's course, occasioned by the shifting of the winds, currents, &c.; or a traverse is a compound course, in which several different courses and distances are known.

Traverse failing is used when a ship, having fet fail from one port towards another, whose course and distance from the port failed from are given or known, is, by reaon of contrary winds, or other accidents, forced to shift and fail on several courses, which are to be brought into one course, to learn, after fo many turnings and windings, the true course and distance made from the place failed from, and the true point or place where the ship is; that is, the wind coming fair, it may be known how, afterwards, to shape a course for the place intended.

This may be performed geometrically two ways; the firft by drawing new meridians, through the extremity of every course, parallel to the firft meridian, or north and south line at firft made, and fetting off every course with a sweep of sixty, as if it were a qunetion in plain failing: you may also let fall perpendiculars to every new meridian, from the point that the ship failed to upon that course; by which you have the course, distance, difference of latitude, and departure, to every course.

To illustrate this by an example: a ship, being bound for a port distant 120 miles N.E. 45° E. falls S.S.E. 30 miles, then N.E. by N. 40°, then E. by N. 25°, then N.N.E. 44°: it is required to find the course and distance made good, and also the course and distance to the port bound for.

Draw the line HK (Plate VI. Navigation, fig. 1.) at pleasure, for a meridian, or north and south line, and therein assume a point, as A, for the port failed from; then, with 60 of the chords, and one foot in A, draw the arc Lm, upon which let off two points (because the course is S.S.E.) from L to m, and draw the line A m, upon which let off the distance 30 from A to B; then is the ship at B: thus letting fall the perpendicular BK, A K 27° 7', is the difference of latitude, and B K 11° 5', the departure of the first course.

For the second course: with the distance KB draw the parallel BN, and thereby with the chord of 60, as before, let off the second course and distance, N.E. by N. 40°, from B to C, and let fall the perpendicular CL; then is the ship at C, the difference of latitude upon the course is B L 33° 3', and departure C L 22° 2'.

Proceed in the same manner for the third course: with the parallel CO, let off E. by N. 25°, from C to D, and draw the line D P, from which let off the laft course, N.N.E. 44°, then is your ship at E.

Since, then, the ship came from A, and is now at E, the line AE, measured on the fame equal parts upon which all the other distances were taken, will be found 91 miles; and the arc RQ, measured on the rhumbs, five points; viz. N.E. by E.; so that the ship is now 91 miles N.E. by E. from the port failed from.

To find her course and distance to the port bound for, let off four half-points upon the arc RQ, from R to S, and from A through S draw the line A SF; upon which let off 120, the distance from the port failed from, to the port bound for, from A to F; then is F the port bound for; now the port bound for being at F, and the ship being but at E, the line EF, measured on the fame equal parts that the refl was taken from, will be found to be 31°; and the arc TV, measured on the rhumbs, is 35° 12', or N.E. by N. somewhat easterly, &c. This method is useful where the courses tend generally one way, without intersecting one another; but if they often crofs, it is helpt to have recourse to the second method, which is without new meridians.

In order to this, observe how many points are between the point next to be laid down, and the point opposite to the course laid down; for that is the point for laying down: then when the chord of 60, and one foot in the point the ship is laft come to, describe an arc; upon which let off the points found by the above faile rule, and through that draw the line for the next course, &c. For an example:

- Draw a north and south line, as in the former, as the line R M (fig. 2.), in which assume a point, as at A, for the
port failed from; then from A set off the first course and distance, viz. N.N.W. 68, from A to B; and for the second course, with the chord of 60, and one foot in B, draw the arc T W, upon which to set off the next course S.S.W. 70: observe the rule above delivered; viz. to take the number of points between the point next to fail, and the point of which rule is this; if from A to B your course be N.N.W., then back from B to A must needs be S.E. the opposite point; and then if you were to fail S. by E. it must be one point to the southward of that S.E. line; if S. it is two points; and consequently the next course being S.S.W., you are to set off four points, upon which set off 70 miles, from B to C, and then is your ship at C: for the third course, if from B to C be S.S.W., then from C to B is N.N.E.; but the next course being E. ½ N. the points between N.N.E. and E. ½ N. are five points and a half; and therefore, with the chord of 60, and one foot in C, draw the arc X Y, upon which set off five points and a half from X to Y; and through Y draw the line C D, upon which set off 90 miles from C D: then is your ship at D.

After the same manner lay down all the rest, as D E, which is W.N.W. ½ N. 70; then E F, S. 25; then F G, E. ½ S. 45; then lastly G H, S. 30, which is the last course.

Thus your ship being at H, and the port failed from at A, the line A H, 28 miles, is the distance made good; and the angle at A is four points, viz. S.E.; but the port intended for being S.W. 55, set it from A to K; and the ship being at H, the line H K, 62 miles, is the distance from the ship to the port bound for; and the course is found by measuring the angle at H 71° 49', or W.S.W. more than a quarter westerly, &c.

To work a Traverse by the Tables of Difference of Latitude and Departure.—This is the principal use those tables are intended for; and the way of working a traverse by them is equal to the bell for exactness, and superior in point of expedition.

Make a little table with six columns, the first for the course, the second for the distance, the third for the northing, the fourth for the southing, the fifth for the easterly, and the sixth for the westerly. Then find the difference of the latitude and the departure to every course, and set them in their proper columns; as, where the course is northerly, set the difference of the latitude under northing; or, in the north column; and where the course is southerly, set the difference of latitude in the south column.

Again, where the course is easterly, set the departure in the east column, and when westerly, set it in the west column: then, adding up each column by itself, subtract the north and south columns, the less from the greater, the remainder is the northing or southing made good. Also subtract the east and west columns, the less from the greater, the remainder is the easterly or westerly made good; then you have the difference of latitude and departure given to find the course and distance.

In the first example above specified, the first course is S.S.E. 50 miles, or two points 30 miles; for which I find the difference of latitude 27° 7. Now the course being between southerly and easterly, I place my difference of latitude in the south column, and my departure, 11 : 5; in the east column, leaving the north and west columns blank.

Then for the second course N.E. by N. or three points 40 miles, my difference of latitude, 33 : 3, is to be placed in the north column, and the departure, 22 : 2, in the east column; because the course is between the north and east.

Then the third course being E. by N. or seven points 25 miles, I place my difference of latitude, 4 : 9, in the north column; and departure, 24 : 5, in the east column.

And so for the fourth course N.N.E. or two points 44 miles, I place my difference of latitude, 40 : 6, in the north column; and my departure, 16 : 8, in the east column; then adding up each column, the sum of the southing column is 78 : 8, and the sum of the southing column is 27 : 7; which subtracted from the northing, 78 : 8, the remainder, 51 : 1, is the difference of latitude made good, which is northing, because the northings was the greater number.

Again, the sum of the easterly column is 75 : 0, which, because there is no weather to subtract from it, is the easterly made good. Thus you have the northing 51 : 1, and the easterly 75 : 0 given, to find course and distance; and though you cannot find in the table the exact number of 51 : 1 and 75 : 0 together, yet find the nearest you can, which is 75 : 41, and 50 : 9, over which, at the top, you find 34 degrees for the course, which is N.E. by N. 6° 15', easterly, and the distance is 91 miles.

To reduce a Traverse by the Scales on Gunter's Scale, improved by Mr. Roberton.—E.g. A ship in 40° N. lat. and 5° 14' W. long. fails the S.E. by S. 68 min. then S.W. by W. 55 min. and then W.N.W. 75 min. What is her difference of latitude and departure in this general run?

The proportions are, for the

<table>
<thead>
<tr>
<th>First Course.</th>
<th>Second Course.</th>
<th>Third Course.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depart. S. 8 pts. : 68'</td>
<td>S. 5 pts. : 57'</td>
<td>S. 3 pts. : 38'</td>
</tr>
</tbody>
</table>

| Traversing Table. | | | |
|-------------------|-------------------|-------------------|
| Departure. E. W. | | | |
| S.E. by S. 68 | 57.0 | 38.0 | |
| S.W. by W. 55 | 30.6 | 46.0 | |
| W.N.W. 75 | 28.8 | 69.5 | |
| General diff. Lat. | 58.8 | 77.5 | |

Then is the department made good in this day's run.

To work the above on the Sliding Gunter.—Set five of 8 points on the fixed piece, by the help of the brass index, against 68 num. on the slide; then draw the said index to S. 5 points, you will find 57 num. on the slide for the difference of latitude; and (without any alteration) against S. 3 points, on the fixed piece, you will have 38 num. on the slide for the departure.

With the compasses, take the extent from 8 points on the fine rhumbs to 68 on the numbers; the said extent laid the same way from fine 5 points will reach to 57 on the num.
If a matter be expressly pleaded in the affirmative, which is expressly answered in the negative, no traverse is necessary, there being a sufficient issue joined: also where the defendant or his attorney has given a particular answer in his plea to all the material points contained in the declaration, he need not take a traverse: because when the thing is answered, there needs no farther denial.

**Traverse of an Indictment or Presentment** is the contradicting or denying some chief point of it, and taking issue thereon. See *Indictment*, and *Presentment*.

Thus, in a prentment against a person for a highway overflowed with water, for default of fencing a ditch, &c. he may either traverse the matter, by alleging that there is no highway, or that the ditch is sufficiently fenced; or he may traverse the cause, viz. by alleging that he hath not the land, or that he and they have a lease, &c. have not used to clean the ditch.

It is not customary, nor agreeable to the general course of proceedings, unless by consent of parties, to try persons indicted of smaller misdemeanors at the same court in which they have pleaded not guilty, or traversed the indictment.

But they usually give security to the court, to appear at the next affizes or sessions, and then and there to try the traverse, giving notice to the prosecutor of the same.

**Traverse of an Office** is the proving that an inquisition made of lands or goods is defective, and untruly made. See *Office*.

No person shall traverse an office, unless he can make to himself a good right and title: and if one be admitted to traverse an office, this admission of the party to the traverse supposes the title to be in him, or else he could have no cause to traverse.

**Traverse is sometimes used in Heraldry, for a partition of an escutcheon, which they blazon parti per pale, traverse, argent and gules.**

**Traverse, in the Manager.** A horse is said to traverse, when he cuts his tread crose-wise; throwing his crouse to one side, and his head to another.

**Traverse Tyle.** See *Tyle*.

**Traverse Bay, Grand, in Geography, a bay on the eait side of lake Michigan. N. lat. 44° 35'. W. long. 86°.**

**Traverse Islands, a chain of islands at the east end of Noquet's bay, in lake Michigan: on one of the largest is a town of the Ottoway Indians.**

**Traverse River, a river of Louisiana, which runs into the Mississippi, N. lat. 38° 30'. W. long. 92° 5'.**

**TRAVERSIERE, Flute, commonly called the German-flute, being supposed of German invention. But it has its title of flute traversiere in France, from the different manner of holding it from that of la flute à ber, or common flute.**

Its original compass was from the lowest D in the treble, to a in altissimo.

Such was the extent of the scale in 1752, when Quantz published his "Methode de la Flûte," who was the late Frederic king of Prussia's master on that instrument, and the first who added keys to correct and clear the bad notes.

In the folio Encyclopédie, tom. vi. there is a scale of all the tones, semi-tones, and shades possible on the instrument, with an additional half-note, C or D, below the usual lowest note of its compass, and three notes above A in altissimo, the highest note of Quantz's scale. See *Music Flutes*.

For the history of the flute traversiere, Quantz tells us that in the year 1620 it had no key to make D or E, and was called the Swifs flute. It was the French who added the first key; but it was not known by whom or when,
when. Quantz himself added a second key in the year 1726, and about 1732, a third. Two more keys have since been added by subsequent performers on the instrument; but it has been thought more for parade than use: as the management of five keys in rapid performance, would be as difficult as running divisions on an organ with all the five short keys split into quarter-tones. See Fackler.

TRAVESTY, or Travesty, a term which some late authors have introduced into poetry; it is originally French, being a participle of the word travestir, to disguise one's self, or to appear in masquerade. Hence travesty comes to be applied to the disfiguring of an author, or the translating him into a style and manner different from his own; and is generally applied to pieces of humour.

Travesty, or parody, may be divided into two classes:—that which is intended to ridicule absurdity, and that the purpose of which is to extract gaiety and laughter from compositions in their own nature grave and admirable. The Rehearsal by the duke of Buckingham is the bell specimen of the former. At a period when false taste seems to have prevailed in an eminent degree, which would be most likely to happen when a man of splendid talents like Dryden condescends to sacrifice his better judgment for the puerile amusement of a temporary popularity, an author of wit has the appearance of doing the public a service, who shall call them to sobriety and good sense by the force of ridicule. The second kind of travesty has stillless that can be alleged in its favour. Its direct operation is to pollute our better feelings, and tarnish with a putrefying film of ridicule all the noblest and most exquisite effusions of the human mind. Here unfortunately ridicule most easily takes hold. We cannot laugh at nothing; the prattle of inanity bids defiance to the ludicrous. There must be something of what we have been accustomed to view with honour in the composition we are facetiously invited to contemplate again and again with bursts of laughter against the author. But that which is most easily turned into burlesque, and affords the most permanent hold of an attack of this fort, is the language and sentiments that had before excited in us the deepest and most sacred emotions. The very contrast between the solemn feelings with which these things had been formerly regarded, and the unexpected colour of absurdity which is given them now, makes the temptation to laughter the more violent and irresistible.

G. Battista Lalli has travestied Virgil, or turned him into Italian burlesque verse. Scarron has done the same in French; and Cotton and Philips in English verse.

Cafalio is, by some, charged with having travestied the sacred text, by reason of the difference of air and style between his version and the original.

TRAVICE, in the Manier, is a small inclosure or oblong quadrangle placed before a fr retar's shop, and consisting of four pillars or posts, kept close together by cros poles. This inclosure is designed for holding and keeping in a horse that is apt to be unruly or disorderly in the time of shoeing, or of any operation.

This, in some of the remote parts of England, goes by the name of a break; and is called in French, traveil.

TRAUMATICS, Traumatics, Vulgarities, or medicines good for the healing of wounds. See Vulnerary and Aeglutinant, Healing, and Consolidation.

TRAUMATICUM, Balsamum. See Balsamum Traumaticum.

TRAU, in Geography, a river of Austria, which rises in the Hallstatter See, forms a considerable lake, called Traun See, and runs into the Danube, about three miles below Steyrregg.—Also, a river of Bavaria, which rises from two lakes, Forchensee and Daubensee, and enters the Alza, 4 miles N. of Chiemsee.

TRAVNIKOUVA, a town of Russia, on the Lena; 6 miles S.S.E. of Orelne.

TRUNKIRCHEN, a town of Austria; 12 miles S.E. of Voglabruck.

TRAUNE, a town of Austria; 4 miles S.W. of Zwettl.

TRAUNSTEIN, a town of Bavaria, on the Traun, where are some considerable salt-works; 18 miles W. of Salzburg. N. lat. 47° 21'. E. long. 12° 35'.

TRAUSI, in Ancient Geography, a people of Thrace, in the environs of mount Hæmus, wholly massacred by Herodotus, esteemed thes of the other Thracians.

TRAUTSTEIDT, or Eisenstadt, in Geography, a town of the duchy of Warsaw; 40 miles S.S.W. of Posen.

TRAUN, a town of Bohemia, in the circle of Königgratz; 21 miles N. of Königgratz. N. lat. 50° 27'. E. long. 15° 48'.

TRAUTELENFELS, a town of the duchy of Styria; 7 miles E.N.E. of Groming.

TRAUTMANSDORF, a citadel in the county of Tyrol; 4 miles N.E. of Tyrol.

TRAUTMANSROFF, a town of Austria; 6 miles W.N.W. of Brugg.

TRAVUS, in Ancient Geography, a river of Thrace, which discharges its waters into the lake of Bitonis.

TRAYAGUERA, in Geography, a town of Spain, in Valencia, surrounded by a wall flanked with towers. Here is a manufacture of fine earthenware; 80 miles N.E. of Valencia.

TRAYL-BASTON, or Trail-Baston. Edward I. in his 32d year, sent out a new writ of inquisition, under this denomination, against the intruders on other men's lands, who, to oppress the right owner, would make over their lands to great men; against batterers hired to beat men, breakers of peace, ravifiers, incendiaries, fighters, false affiants, and other malefactors; which inquisition was so strictly executed, and such fines taken, that it brought in much treasure to the king.

Hence, also, justices of trail-baston, a denomination given to the justices appointed to execute this commission, either by reason of their severe and summary way of proceeding, or because a staff was delivered them as the badge of their office, and the offenders were dragged before this jurisdiction.

TRAYTOR, Traitor, Traitor, a betrayer of his king and country, or one guilty of high treason. See Treason.

TRAYTOROUS or Traitorous Person, is particularly underloid of a tenet, which some formerly held, of the legality of taking arms, by the king's authority, against his person, and those commissioned by him; which is condemned by statute 14 Car. II. c. 3.

TRAZA, in Geography, a town of Arabia, in the country of Yemen; 70 miles N. of Loheia.

TREC, in Pharmacy, &c. See Theriac.

The word treacle is also popularly used for mealties; and in this sense it is that Dr. Shaw, in his "Essay on Distillery," has endeavoured to bring into use several sorts of treacles, which might be made at home, and would serve very conveniently for the distillation of spirits, or the making of potable liquors. These are the infilpated juices or decoctions of vegetables; such as the sweet juice of the birch, or yarrow, procured by tapping or piercing the trees in spring, and the common wort made from malt, or from other vegetable substances treated in the same manner. These liquors
TRE

liquors are severally to be boiled down in a copper till they begin to infipitate, and then to be poured into a balneum Maria, when the remainder of the evaporation may be
finifhed without burning the infipitated juices: thus pre-
pared, it may be at any time reduced to the state of wort,
only by adding a fufficient quantity of warm water.
Treacle is employed for the more quickly fattening fome
forts of domestic animals, fuch as sheep and neat cattle,
when properly mixed and united with different forts of
dry materials, fuch as pollard, bruifed grain, cut hay, and
many other matters of the fame nature, as they moftly fon
become very fond of it, and it is well known to be of a
very nutrient quality. Trials have been made with it in this
view, with great success. See Staal-feeding.

TREACLE-Mulnard, or Mitribadice, in Botany. See
Thlaspi.
The feed enters into the composition of the theriaca,
and externally used, cleafes all forts of ulcers, and is also a
tarmic, but not very common. It is reckoned an enemy
to pregnant women, becaufe it kills the fatus. James. See
Thlaspius Semen.

TREACLE-Mulnard, is also a name given to the clypeola.

TREACLE-Water, Aquæ Theriacæ, a compound cor-
dial, or精神文明 water, diffilled with a精神文明 men-
fbruam, from any cordial and fulodic drugs and herbs,
with a mixture of fome of the theriaca Andromachi, or
Venet treacle; whence its name.

TREAD, in the Manage. See Piste.
The tread of a horfe is considered to be good, when
firm, and without the animal refting upon one fide of the
foot more than upon the other, or fetting down the toe or
heel one before the other. Where the heels are firft fet
down to the ground, it is often fuppofed to be a fign that
the animal is unfound in its feet. And where the toes are
firft put to the ground, it is considered as fhewing that
the horfe has been of the draught or diftant kind. Confequently,
in a good going horfe of the faddle fort, the whole foot
should be fet down equally, at the fame time, and
neither turned out nor in, in any perceptible degree.

Tread upon the Coronet, is a term applied to any injury
which is done to it by the treading of the other horfes or
animals on it. See Coronet.

TREADHAVEN CREEK, in Geography, a branch of
the river Choptank.

TREADING in Wheat, in Agriculture, the practice of
making fuch land as is light, fandy, and friable, hard and
firm by fuch means after the feed has been put into it, in
order to fecure its vegetation and growth in a more perfect
manner. It has been fuggelted as ufeful on different kinds
of foy, but it is evidently the moft proper for thofe that are
light and open, either from their particular nature and
quality, or the forts of crops by which they have been occu-
pied, as tho'fe of the potato, turnip, or other fimilar kinds.
In all fuch cafes, it will be found of great utility and ad-
vantage in promoting the elablifhment of the roots of the
plants, by forcing the wheat to strike more strongly into
the foy, and by keeping the frots from injuring and throw-
ing them out while in the early state of their growth. But
in other kinds it may be injurious and hurtful in many in-
fances, and moftly unnecessary.

The bolt mode of effecting it is probably by the ufe of
fweep immediately after the land has been fown and harrowed,
by turning them upon it in fufficient quantities, as they
do it in a very effectual manner. Some have, however, re-
course to other forts of animals, as neat cattle and horfes,
and to rolling; but this is feldom fufficient well, as it is
liable to increafe the friability below in fuch foyals. The
cattle and horfes, when in fufficient number, often produce
much benefit in this way; and in fome places, where the
land is of a foft abraded fotty quality, teams of fix or eight
oxen are used in covering in the fee, in drawing a light
pair of harrows, in this intention. Wherever treading is
necessary in this view, it should confantly be performed in
an effectual manner, with whatfert fort of live-rock it is
done, whether fheep, oxen, or horfes. Sometimes treading
is found beneficial for wheat, on fuch foyals, fo late as
March, even more foon than at the time of putting in the feed,
as tending to deftroy weeds, fuch as the corn-poppy, &c.

The practice of treading in the wheat is, of course,
mootly to be adopted, in all thofe cafes, as tending to fecure
and increafe the quantity of the produce whenever fuch
forts of land are fown with that kind of crop. See Wheat.

TREASON, Treachery, the act or crime of infidelity
to one's lawful sovereign.

Treason is a general appellation made ufe by the law,
to denote not only offences againft the king and government,
but also that accumulation of guilt which arises whenever
a fuperior repofes a confidence in a fubject or inferior, be-
tween whom and himfelf there subsists a natural, civil, or
even fpiritual relation; and the inferior fo abufes that con-
fidence, and fo forgets the obligation of duty, fubjeftion,
and allegiance, as to deftroy the life of any fuch superior or
lord. Whence

Treason, in our laws, is of two forts, high and petty.

Treason, High, or Treafon Paramount, which is equiv-
calent to the crimen lege majeflatis of the Romans, (as Glanvi
denominates it also in our English law,) is an offence com-
mitted againft the fecurity of the king or kingdom, whether
by imagination, word, or deed.

In order to prevent the inconveniences which arose
in England from a multitude of conftructive treasons, the
statute 25 Edw. 111. c. 2. was made; which defines what
offences only for the future should be held to be treason:
and this statute comprehends all kinds of high-treafon
under seven different branches.

1. "When a man doth compafs or imagine the death of
our lord the king, of our lady his queen, or of their eldeft
son and heir." A queen pregnant is alfo within the words
of the act, though it does not extend to the husband of
such a queen. And the king here intended is the king in
possession, without any refpect to his title: confequently,
a king who has refigned his crown, fuch refinement being
admitted and ratified in parliament, is no longer the objec-
t of high-treafon; and the fame reason holds in cafe the king
abdicates the government; or, by actions subverte of the
constitution, virtually renounces the authority which he
claims by that constitution. As the compafing or
imagination, expreffed by this statute, is an act of the mind,
it cannot poftibly fall under any judicial cognizance, unlefs
it be demonftrated by fome open or overt act. The statute
expreffely requires, that the accused "be thereof upon suf-
cient proof attainted of fome open act by men of his own
condition." Thus to provide weapons or ammunition
for the purpofe of killing the king, is held to be a palpable
overt act of treafon in imagining his death: to compofe to
imprison the king by force, and move towards it by attem-
bathing company, is an overt act of compaffing the king's
death: and taking any means to render treafonable pur-
poles effectual, as afsembling and confulting on the means
to kill the king, is a fufficient overt act of high-treafon. It
now seems clearly to be agreed, that, by the common law
and the statute of Edw. 111., words spoken amount only to
a high misdemeanor, and no treafon. If the words be let
down
TREASON.

down in writing, it argues more deliberate intention; and it has been held, that writing is an overt act of treason; for **scribere eft agere.** But even in this case, the bare words are not the treason, but the deliberate act of writing them. It was formerly held, that the publication of a treasonable writing was a sufficient overt act of treason at the common law; though of late even that has been questioned.

2. The second species of treason is, "if a man do violate the king's companion, or the king's eldest daughter unmarried, or the wife of the king's eldest son and heir." By the king's companion is meant his wife, and by violation is understood carnal knowledge, as well without force, as with it; and this is high-treason in both parties, if both be consenting.

3. The third species of treason is, "if a man do levy war against our lord the king in his realm." And this may be done by taking arms, not only to dethrone the king, but under pretence to reform religion, or the laws; or to remove evil counsellors, or their grievances, whether real or pretended; and by intimidation and violence to force the repeal of law.

4. "If a man be adherent to the king's enemies in his realm, giving to them aid and comfort in the realm, or elsewhere," he is also declared guilty of high-treason. This must likewise be proved by some overt act, as by giving them intelligence, by sending them provisions, by selling them arms, by treacherously surrendering a fortress, or the like.

5. "If a man counterfeits the king's great or privy-seal," this is also high-treason.

6. The sixth species of treason under this statute is, "if a man counterfeits the king's money; and if a man bring false money into the realm counterfeit to the money of England, knowing the money to be false, to merchandise and make payment withal." Counterfeiting the king's money is treason, whether the false money be uttered in payment, or not. Also if the king's own minters alter the standard or alloy established by law, it is treason. But gold and silver money only are held to be within this statute. With regard, likewise, to importing foreign counterfeit money, in order to utter it here; it is held that uttering it, without importing it, is not within the statute.

7. The last species of treason ascertained by this statute is, "if a man slay the chancellor, treasurer, or the king's judges of the one branch or the other, judges in eyre, or judges of assize, and all other judges assigned to hear and determine, being in their places doing their offices." This statute extends only to the actual killing of them, and not to a wounding, or bare attempt to kill them. The barons of the exchequer are not within the protection of this act; but the lord keeper or commissary of the great seal now seem to be within it, by virtue of the statute 5 Eliz. c. 18. and 1 W. & M. c. 21.

The new treasons created since the statute 1 M. c. 1. and not comprehended under the description of statute 25 Edw. III. may be comprised under three heads. The first species relates to Papists; the second, to falsifying the coin (see <i>British Coins</i>) or other royal signatures; as falsely forging the sign manual, privy signet or privy seal, which shall be deemed high-treason. (1 M. fl. ii. c. 6.) The third new species of high-treason, is such as was created for the security of the Protestant succession in the house of Hanover. For this purpose, after the Act of Settlement was made, it was enacted by statute 13 & 14 Will. III. c. 3. that the pretended prince of Wales, assuming the title of king James III., should be attainted of high-treason; and it was made high-treason for any of the king's subjects to hold correspondence with him or any person employed by him, or to remit money for his use. And by 17 Geo. II. c. 39. it is enacted, that if any of the sons of the Pretender shall land or attempt to land in this kingdom, or be found in the kingdom or any of its dominions, he shall be adjudged attainted of high-treason; and corresponding with them or remitting money to their use, is made high-treason. By 1 Ann. fl. ii. c. 17. the offence of hindering the next in succession from succeeding to the crown is high-treason; and by 6 Ann. c. 7. if any person shall maliciously, advisedly, and directly, by writing or printing, maintain, that any other person hath any right to the crown of this realm, otherwise than according to the Act of Settlement, or that the kings of this realm, with the authority of parliament, are not able to make laws to bind the crown and its defect; such person shall be guilty of high-treason.

The punishment of high-treason in general is very solemn and terrible. 1. That the offender be drawn to the gallows, and not be carried or walk; though usually (by custom, at length ripened by humanity into law) a pledge or hurdle is allowed, to preserve the offender from the extreme torment of being dragged on the ground or pavement. 2. That he be hanged by the neck, and then cut down alive. 3. That his entrails be taken out, and burned, while he is yet alive. 4. That his head be cut off. 5. That his body be divided into four parts. 6. That his head and quarters be at the king's disposal.

The king may, and often doth, discharge all the punishment, except beheading, especially where any of noble blood are attainted. For beheading being part of the judgment, that may be executed, though all the rest be omitted by the king's command. But where beheading is no part of the judgment, as in murder or other felonies, it hath been said that the king cannot change the judgment, although at the request of the party, from one species of death to another. See Execution.

In the case of coinage, the punishment is milder for male offenders; being only to be drawn, and hanged by the neck till dead. But in treasons of every kind, the punishment of women is the same, and different from that of men: for, as the decency due to the sex forbids the exposing and publicly mangling of their bodies, their sentence is to be drawn to the gallows, and there to be burned alive.

The consequences of the judgment pronounced upon a traitor are attaint, forfeiture, and corruption of blood. See Attainder, &c.

The maxim, that, *in majori prolationis, omnes sunt principales,* there are no accessories in high-treason, all are accounted principals.

Also, that *voluntas non reputabitur pro faato, nisi in camus prolationis,* the will is never taken for the deed in any case, but in that of high-treason. See Indictment.

Treason, Petit or Petit, according to the fl. 25 Edw. III. c. 2. may happen three ways: by a servant killing his master, a wife her husband, or an ecclesiastical perdon (either secular or regular) his superior, to whom he owes faith and obedience. A servant, who kills his master whom he has left, upon a grudge conceived against him during his service, is guilty of petit treason: so if a wife be divorced *a mensa et thoro,* still *vindicat matrimonii subfibs,* and if the king fuch divorced husband, she is a traitor: and if a clergyman is underfoot to owe canonical obedience to the bishop who ordained him, to him in whose diocese he is beneficed, and also to the metropolitan of such suffragan or diocefan bishop; and therefore to kill any of these is petit treason.

A perdon indicted of petit treason may be acquitted thereof, and found guilty of manslaughter or murder; and in such case, it

Treasure, Appeal of High. It was anciently permitted, that any subject might appeal another subject of high-treafon, either in the courts of common law, or in parliament, or (for treafons committed beyond the seas) in the court of the high-treafurer, the two grand-treafurers, and the magistrates. The cognizance of appeals in the latter still continues in force; and to late as 1651, there was a trial by battle awarded in the court of chivalry, on such an appeal of treafon; but that in the first was virtually abolished by the first flat. 5 Edw. III. c. 9, and 25 Edw. III. c. 24, and in the second expressly by flat. 1 Hen. IV. c. 14. So that the only appeals now in force, for things done within the realm, are appeals of felony and mayhem. Blackliff. Comm. vol. iv.

Treasure, Confriptive, an offence raised, by forced and arbitrary conftuction, into the crime and punishment of treafon, which never was confecrated to be fuch: a multitude of thefe existed before the inconvenience was remedied by 25 Edw. III. c. 2. Confriptive treafons were also numerous in the reign of Richard II. and afterwards in the reign of Henry IV. and queen Mary, and particularly in the bloody reign of Henry VIII., all which were abrogated by the flat. 1 Mary, c. 1, which once more reduced all treafons to the flandard of the flat. 25 Edw. III.

Treasure, Misprifon of. See Misprifion.

TREASURE, Thesaurus, Sexagesim, a flore, or flock of money, in reserve.

Treasure-crowe, q. d. treafure found, thefaurus inventus, in lavo, is when money, gold, fiver, plate, or buckoon, is found in the ground, in any place, and none knows to whom it belongs.

This should naturally fall to the finder, to whom it formerly belonged, as was the rule of the civil law: but particular nations have made particular provisions for it. The Jews give it to the proprie:tor of the place where it was found: the Roman jurisprudence was various with regard to it; sometimes it was given to the master of the grounds, sometimes to the finder, and sometimes it was adjudged to the public treasury and marhal.

In England, and also in Germany, France, Spain, and Denmark, the general ufage is, to have such treafure confecrated to the king, unless where the benefit of it is expressly granted or made over by the king to some other, as the lord of the manor: and that the prince shall be intitled to this hidden treafure, is now become, according to Grotius, jus commune & genius. If, indeed, he hid it he known, or afterwards found out, the owner, and not the king, is intitled to it. Also, if it be found in the sea, or upon the earth, it doth not belong to the king, but the finder, if no owner appears. So that it feems it is the hiding, not the abandon-

In some places in France it is divided into three parts, one for the king, one for the proprietor of the land, and one for the finder.

Briton fays, it is every fubjeet's part, as soon as he hath found any treafure in the earth, to make it known to the lord of the county, &c.

The punishment for hidding treafure found in England, was formerly no les than death; but now it is only imprisonement and fine: but if any mine of metal be found in any ground, it always appertain to the lord of the foil, except it be a mine of gold or siver, which ancietly always belonged to the king, in whose ground it was found; but, by an act of parliament, the king hath now only the pre-emption.

TREASURER, an officer to whom the treafure of the prince, or corporation, is committed to be kept, and duly disposed of, in payment of officers, and other expences. See TREASURY.

Of these there is a great variety. His majesty of Great Britain, in quality of elector of Brunfwick, was formerly arch-treafurer of the Roman empire. In the fates of Poland are two grand-treafurers; that of the kingdom of Poland, and that of the duchy of Lithuanua.

In England, the principal officers under this denomination are, the lord high-treafurer, the treafurer of the household, treafurer of the navy, of the king's chamber, &c. Anciently, we had likewise a treafurer of the exchequer, treafurer of war, &c. In the Romish countries, the title of treafurer is also given, somewhat abusively, to an ecclesiastic, who has the keeping of the relics, and of the charters and archives of a church or monaftery. This dignity succeeds, in forme measure, to that of the ancient deacons, who had the like charge in the primitive church.

TREASURER of England, Lord High, is the principal officer of the crown; under whose charge and government is all the king's revenue kept in the exchequer.

He receives the office by delivery of a white staff to him from the king, and holds it during the king's pleasure: anciently he received it by delivery of the golden keys of the treafury.

He has the cheque of all the officers any way employed in collecting imposts, customs, tributes, or other revenues of the crown. He has the gift of all the customers, comptrollers, and searchers' places, in all the ports of London; and the nomination of the efcheatours in every county.

He alone (or others in commiffion with him) lets leaves of all the crown-lands, gives warrants to certain perfons of quality to have their wine custom-free, &c.

Killing the lord-treafurer in the execution of his office, is high-treafon.

The office of lord-treafurer is now in commiffion.

The number of lords-commiffioners is five.

TREASURER of England, Under. See Under-Treafurer. TRESERER of the Household, is an officer who, in the absence of the lord-treafurer, has power, with the comptroller and other officers of the Green-cloth, and the steward of the Marshallens, to hear and determine treafures, felonies, and other crimes committed within the king's palace. See HOUSEHOLD.

There is also a treafurer belonging to the eftabli{hment of her majesty's household, &c.

TREASURER of the Navy, is an officer who receives money out of the exchequer, by warrant from the lord high-treafurer, or the lords-commiffioners executing that place; and pays all charges of the navy, by warrant from the principal officers of the navy. See NAVY.
TREASURER of the County, he that keeps the county flock.

There are two of them in each county, chosen by the major part of the juries of the peace, &c. at their general quarter-seccion; under previous security given for the money entrusted with them, and the faithful execution of the trusts reposest in them.

The juries may continue or remove these treasurers at pleasure, and allow each of them a salary of 20l. a year.

The county flock, of which this officer hath the keeping, is raised by rating every parri. yearly; and is dispofed of to charitable uses, for the relief of maimed soldiers and mariners, prisoners in the county-gaols, paying the salaries of governors of houses of correction, and relieving poor almshouses, &c. And the duty of these treasurers, with that of raising the flock, and how it shall be dispofed of, is set forth particularly in the statutes of 43 Eliz. cap. 2. 

TREASURER, in Cathedral Churches, an officer whose business was to take charge of the vestments, plate, jewels, reliques, and other treasures belonging to the said churches. At the time of the Reformation, the office was extinguisht, but needes in most cathedral churches; but it is still remaining in those of Salisbury, London, &c.

TREASURY, the place in which the revenues of a prince are receiv'd, preferv'd, and disbursed.

In England, the treasury is a part of the exchequer; by some called the lower exchequer.

The officers of his majesty's treasury, or the lower exchequer, are the lords-commisioners, one of whom is chancellor, two joint secretaries, private secretary to the first lord, two chamberlains, an auditor, four tellers, a clerk of the files, rulers of the receipt, a tally-cutter, &c. See each officer under his proper article, CHANCELLOR, TELLER, TALLY, &c.

At Rome, under the emperors, there were two kinds of treasuries, the one called ararium, wherein the monies deended to support the charges of the government were kept; and the other fiscus, wherein were preferv'd those intended for the particular intollance of the emperor and his court. In effect, the ararium belonged to the people, and the fiscus to the prince. See ARA R A R I U M and F I S C U S.

We have still a resemblance of this difference among us; but it is confounded in France, &c. where the king dispofes absolutely of the public treasurers, &c.

The Athenian treasury was sacred to Jupiter Σωτήρ, or the Saviour, and to Plutus the god of riches. Besides the public monies, there were always a thousand talents kept in it, which it was capital to touch, unleas on the most pressing occasions. See ΟΙΣΙΟΝΟΙΟΣ.

The funds among the Athenians, which supplied their treasury, were four; viz. the telar, τελαρ; the phoris, φόροι; the eisphora, έισφορά; and the timenata, τιμενατά.

The public treasury was divided into three parts, according to the use it was applied to: as, 1. The χρήσια της δεκατείας, or that expended in civil uses. 2. The χρήσια της γειτονίας, or money design'd to defray the charges of war. 3. The ιταλισμοι, or money intended for pious uses, in which they included the expences at plays, public shows, and festivals, &c. Potter Archizol. Græc. tom. i. p. 82.

To each of these branches of the public revenue there was a treasurer appointed, as χρησια της δεκατείας, των γειτονίας, and των ιταλισμων, and so των ιταλισμων.

TREASURY, LORDS OF. In lieu of one single director and administrator of his majesty's revenues, under the title of lord high-treasury, it is frequently thought proper to put that office in commissiion, i.e. to appoint several persons to discharge it, with equal authority, under the title of lords-commissioners of the treasury. See Lord-high-Treasurer.

TREASURY ISLANDS, in Geography, a cluster of islands among Solomon's islands. S. lat. 6° 38' to 7° 30'. E. long. 155° 34' to 156°.

TREAT, in our old Law-Books, signifies as much as taken out, or withdrawn. Thus a jury was challenged, because he could not dispend 40s. and therefore was treated by the flate, or discharged.

TREATISE, Tractus, a fet discourse in writing; on any subject.

A treatise is supposed more express, formal, and methodical, than an essay; but less so than a system.

TREATY, Lat. Fédus, a covenant between several nations; or the several articles or conditions stipulated and agreed upon between sovereign powers.

Sovereigns treat with each other by their proxies, who are invested with sufficient power, and who are commonly called plenipotentiaries. The rights of the proxy are expressed in the instructions that are given him; but every thing he promises within the terms of his commissiion, and the extent of his powers, bind his confiant. At present, in order to avoid all danger and difficulty, princes refer to themselves the ratification of what has been concluded upon in their name by their minimiers. A treaty is valid, if there be no fault in the manner in which it was concluded; and for this purpose nothing more can be required than a sufficient power in the contracting parties, and their mutual confiant, sufficiently decla red.

If, however, a treaty has been honestly concluded by a sovereign without his perceiving any iniquity in it, and turns at length to the detriment of an ally, nothing can be more amiable, more laudable, more conformable to the reciprocal duties of nations, than to yield as much as possible, without being wanting to himself, without putting himself in danger, or without suffering a considerable los. Since every treaty ought to be made with a sufficient power, a treaty pernicious to the flate is null, and not at all obligatory; no conductor of the nation having the power to enter into engagements to do such things as are capable of destroying the flate, for the safety of which the empire is entrusted to him. Moreover, a treaty made for an unjuft and dionenl intention is absolutely null; nobody having a right to engage to do things contrary to the law of nature. Nations and their conductors ought to keep their promises and their treaties inviolable. This great truth, though too often neglected in practice, is generally acknowledged by all nations: the reproof of perfidy is esteemed by sovereigns a most atrocious injury; and he who does not obeye a treaty is certainly perfidious, since he violates his faith. On the contrary, nothing adds so great a glory to a prince, and the nation he governs, as the reputation of an inviolable fidelity to his promise. To violate a treaty, is to violate the perfect right of him with whom we have contrafted, and this is to do him an injury. No subsequent treaty can be made contrary to those that actually subsist. Nothing hinders a sovereign from entering into engagements of the same nature with two or more nations, if he is at the same time able to fulfill them with respect to all his allies. But in cases of competition or difference, the most ancient ally ought to be preferred; and besides, the justice of the caufe is another reaon of preference between two allies; nor ought we to affilt him whose caufe is unjuft, whether he be at war with one of our allies, or with another flate.

Grotius (De Jurc Belli et Prin. l. ii. c. 15. § 5.) divides treaties into two general classes: viz. 1. Those which turn merely
merely on things to which we were already bound by the law of nature; and 2. Tho' by which we engage something more. Of the first clafs are all the simple treaties of peace and friendship, when the engagements contracted in them add nothing to what men owe each other as brethren, and as members of the human society; as tho' that permit commerce, passage, &c. Treaties of the second clafs, in which sovereigns engage to do which they are not obliged to perform by the law of nature, are either equal or unequal. Equal treaties are those in which the contracting parties promise the same things, or things that are equivalent, or, in short, that are equitably proportioned, so that their condition is equal; such, e.g., is a defensive alliance, in which they reciprocally stipulate for the same succours: such is an offensive alliance, in which it is agreed that each of the allies shall furnish the same number of vessels, the same number of troops, of cavalry and infantry, or an equivalent in vessels, in troops, in artillery, or in money. Such is also a league, in which the contingent of each of the allies is regulated in proportion to the interest he takes or may have in the design of the league. Equal treaties may be subdivided into as many kinds as the sovereigns have different transactions between them. Thus they treat of the conditions of commerce, of their mutual defence, of associations in war, of the passage they shall reciprocally grant to each other, or refuse to the enemies of their ally, &c.

Nations ought as much as possible to preserve equality in their treaties. Equal treaties are distinguished from equal alliances. The former are those where equality is kept in promises; and the latter are those where equal treaties with equal, forming no difference in the contracting parties, or, at least, admitting no superiority too plainly pointed out; but only some pre-eminence of honours and rank. Unequal treaties are those in which the allies do not promise the same things; and the alliance is unequal when it makes a difference in the dignity of the contracting parties. Tho' unequal treaties that are at the same time unequal alliances, are divided into two kinds; the first, where the inequality is found on the side of the most considerable power, and the second comprehending treaties where the inequality is on the side of the inferior power. Unequal alliances are subdivided into two kinds, such as degrade the sovereignty, and such as do not.

By another general division of treaties or alliances, they are distinguished into personal and real; the former are those that relate to the person of the contracting parties, and are restrained and in a manner attached to them. Real alliances relate only to the things of which they treat, without any dependence on the person of the contracting parties. The personal alliance expires with him who contracted it; but the real alliance is affixed to the body of the state, and subsists as long as the state, if the time of its duration is not limited. The alliance terminates as soon as the term of it is expired; but a treaty made for a time may be renewed by the common consent of the allies, and the renewal is manifested either expressly or tacitly.

Treaties between nations are facred; and he who violates his treaties, violates at the same time the law of nations; for he deprives the faith of treaties, that faith which the law of nations declares facred, and he does all in his power to render it vain. But unhappy experience having too fully convinced mankind, that the faith of treaties is not always a sufficient warrant for their being observed, securities have been sought for against perjury; and hence is derived the origin of a guarantee, and hostages, which fee. The interpretation of treaties is subject to certain rules or maxims, of which writers on this subject have enumerated the following. It is not allowable to interpret what has no need of interpretation: if he who can and ought to explain himself has not done it, it is to his own damage: neither of the contracting parties has a right to interpret the treaty at his pleasure: what a person has sufficiently declared, ought to be taken for true against him: the interpretation ought to be made according to certain rules previously understood and allowed. For these and other particulars, we refer to Vattel's Law of Nations, b. ii.

For the solemn manner in which the Romans used to conclude treaties, see Livy, lib. i. cap. 24. The ceremonies observed by the Greeks in making treaties may be seen in Potter, Archaeol. Græc. lib. ii. cap. 6, tom. i. p. 252, seq.

In general, it appears that the ancients were very religious, grave and solemn in making treaties; which were always confirmed by sacrifices and mutual oaths, with horrid imprecaions on the party that should break the terms of agreement.

There are treaties of war, of peace, of marriage, of confederacy, of neutrality, of capitulation, and of commerce and navigation.

Treaties relating to war are of several kinds. Some of these are connected with alliances, defensive and offensive. In judging of the morality of the several treaties or alliances, or of the lawfulness of them, according to the law of nations, the following is an incontestable principle: It is lawful and commendable to succour and afford, in any way, a nation making a just war; and this assistance is the duty of every nation, which can give it without being wanting to itself. But he who makes an unjust war is not to be afflicted in any manner. Other treaties relating to war include those of neutrality. Sometimes necessity renders a treaty of this fort justifiable; at other times this kind of treaty is the best method of securing peace, and preventing altercation. Some treaties relate to the passage of troops through a neutral country; and others to the search of neutral ships, &c. When the powers at war have agreed to lay down their arms, the agreement or contract in which they stipulate the conditions of peace, with the manner in which it is to be restored and supported, is called the "treaty of peace." The effect of this treaty is to put an end to the war, and to abolish the subject of it. It leaves the contracting parties without any rights of committing hostility, either for the very subject which kindled the war, or for what has passed in the course of it: it is therefore no longer permitted to take up arms. Accordingly, in these treaties, the parties reciprocally obliged themselves to a perpetual peace, which is not to be understood as if the contracting parties promised never to make war on each other for any cause whatever. Peace relates to the war which it terminates; and as it forbids the revival of the same war by taking arms for the cause which at first kindled it, is in reality perpetual. As it is the end of peace to extinguish all subjects of discord, amity, or a perfect oblivion of what is past, should be the leading article of the treaty; and though the treaty should be silent on this head, it is necessarily understood. This treaty binds the contracting parties from the moment of its conclusion, as soon as it has passed through all its forms. From this time all hostilities cease, unless a day is specified when the peace shall take place; but this treaty becomes obligatory on subjects only from the time of its being notified to them. When no term is assigned for the accomplishment of the treaty, and the execution of the several articles, common sense dictates that every point should be executed as soon as possible. The faith of treaties equally excludes from the execution of them all neglect, all dilatoriness, and deliberate delays. A treaty of peace is a public
treaty, obligatory upon the whole nation; it is also a real
treaty, obliging successors as well as the prince who signed it,
since it obliges the state itself.

Treaties of commerce are the compacts or agreements by
which different states secure to themselves and to one another
something constant in their mutual trading intercourse; and
they are usually followed by various tariffs, to adjust the
duties of exportation and importation of merchandise into
the respective dominions of the contracting powers.

A nation having a full right to regulate itself in com-
mercial affairs by what is useful or advantageous, it may
make such commercial treaties as it shall think proper; and
no other has a right to take offence, provided these treaties
do not affect the perfect rights of another. Every such
treaty is allowable among nations, and the execution of it
ought not to be opposed; but that alone is in itself just and
commendable, which, as far as is possible and reasonable in
the particular case, is transacted with a tendereness for the
general interest. Nations may accordingly, in their treaties,
infest such clauses and conditions as they think proper; and
they are at liberty to make them perpetual or temporary,
or dependent on certain events. But when once a nation
has entered into engagements by treaty, it is no longer at
liberty to do, in favour of others, contrary to the tenor of
the treaty, what it might otherwise have granted to them,
agreeably to the duties of humanity, or the general obliga-
tion of reciprocal commerce; being to do for others no
more than what is in its power. Having deprived itself of
the liberty of disposing of a thing, that thing is no longer
in its power. Therefore, when a nation has engaged to
another that it will sell only to them certain goods or pro-
visions, as, e. g. corn; it can no longer carry them for
sale to another market. The cafe is the same in a contract
to purchase certain goods only of that nation. The natural
liberty of trade is not hurt by treaties of this nature; for
this liberty confines only in every nation being unmolested
in the right of trading with those with whom it is disposed to
trade with it; every one remaining free to clothe with or decline a
particular commodity, as it shall judge most advantageous.

The celebrated treaties are those of Ninegum, of Mun-
fier, of the Pyrenees, of Weftphalia, of Rywick, of
Utrecht, of Hanover, Vienna, &c.

The great treaty of peace, commerce, navigation, &c.
between England and France, was signed at Utrecht, the
1st of April, 1713, and consists of 39 articles.

For other treaties, see the general titles.

It is the king's prerogative to make treaties, leagues, and
alliances, with foreign princes and states; and yet, left this
plentitude of authority should be abused to the detriment of the
public, the constitution has interposed a check, by the
means of parliamentary impeachments, for the punishment of
such ministers as, from criminal motives, advise or con-
sider any treaty, which shall afterwards be judged to derogate
from the honour and interest of the nation.

TREATY, Guarantee of. See GUARANTY.
TREBIA, or TREBE Augula, in Ancient Geography, a
town of Italy, in the interior of Latium. Ptol.
TREBA, in Geography, a town of Saxony, in Thuringia;
2 miles S.W. of Salza.
TREBAU, or Mahrisch Trebau, a town of Moravia,
in the circle of Olmütz; 10 miles W. of Müghitz.
TREBBIN, a town of the Middle Mark of Branden-
burg; 20 miles S.S.W. of Berlin. N. lat. 52° 10'. E.
long. 13° 6'.
TREBBIO ANTICO, a town of the Podedom, in the
duchy of Urbino; 17 miles E.N.E. of Urbino.

TREBEJO, a town of Spain, in the province of Leon;
46 miles S. of Ciudad Rodrigo.
TREBELLIANICA, or TREBELLIAN Fourth, in the
Roman Jurisprudence, a right belonging to an heir inluted-
ated by testament. If the testator, after appointing a full and
general heir, spent and disposed of all his effects in legacies;
or if he went ultra deductam, beyond three-fourths thereof;
in that case, the heir was allowed to retrench and detain one
fourth part of the legacies to his own use. This was called the
trebellianica.

In like manner, if the testator charges his heir with a
footment of fruit, and to restore the inheritance to another;
in that case, the heir might likewise retain a fourth of the
whole succession, that the quality of heir might not be ren-
dered wholly vain and fruitless.
TREBELLUS-POLLIO, in Biography, a Latin his-
torian, flourished about the year 298 of the vulgar era.
According to Vopiscus, he wrote the lives of the Roman
emperors from the two Philip's to Claudius; but we have
extant only the latter part of the reign of the elder Valerian,
that of his son, the lives of the two Gallicini, those of the
thirty tyrants, and that of Claudius. He is reckoned one
of the "Historie Augurale Scriptores," and praised by
Vopiscus for his exactness, which applies only to some
dates, as in other points he is very incorrect. His style
is somewhat superior to that of the other historians.
Vollius.
TREBENDA, in Ancient Geography, a town of Asia
Minor, in the interior of Lycia. Ptol.
TREBENITZ, in Geography, a town of Bohemia, in
the circle of Leitmeritz; 70 miles S.W. of Leitmeritz.
N. lat. 50° 27'. E. long. 14° 5'.
TREINESSCHIKOV, a fortress of Russia, in the
government of Caucasus, on the Ural; 64 miles N. of
Guriev.
TREBERK, a town of Germany, in the duchy of
Anhalt-Cothen; 4 miles N. of Cothen.
TREBES, a town of France, in the department of the
Aude; 6 miles E. of Carcassonne.

TREBIA, in Ancient Geography, a river which ran from
south to north, commencing in Liguria, south of the valley
inhabited by the Frimites, and passing into Gallia Cip-
dana, across the territory of the Anamani, watered the
town of Placentia, and discharged itself into the Padus.
The Trebia was famous for the victory obtained by Han-
ibal, near its mouth, over the preeminent and imprudent
Sempronius, in the year of Rome 435; on which occasion
the Romans lost 26,000 men.

TREBIA, in Geography, a river of Italy, which runs into
the Po, 2 miles W. of Piacenza.
TREBIGNO, a town of European Turkey, in Dal-
matia; the site of a bishop; 60 miles S. of Mollar.

TREBINA, a town of Naples, in Basilicata; 5 miles
S.S.W. of Turfi.
TREBIASACCIA, a town of Naples, in the province
of Calabria Cúra, on the coast; 10 miles N.E. of Cúßano.
TREBISOND, or TARABOS, a city of Asiatic
Turkey, with a harbour, on the Black Sea, in the country
of the Colchians: founded by a Greek colony of Sinope,
descended from the Miletians. It derives its historical fame
more from the circumstance of its hospitable reception of the
10,000 Greeks after their celebrated retreat, than for
having been the capital of that portion of the Lower empire.
From the Romans it was taken by the Scythians, or Tur-
tars, in the time of Valerian. The Greek emperors became
afterwards masters of Trebizon, and erected it into a prin-
cipality; Alexis Comnenes took possession of it in the year
1204. When the French and Venetians made themselves
masters
matters of Constantinople, this principality, or, as it is sometimes called, empire, continued till the year 1462, when it was taken by Mahomet II, who carried David Comnenes and all his family prisoners to Constantinople, where they were moitly put to death. The town of Trebifond is built on the seu-flide, at the foot of a little hill, pretty steep; its walls are almost square, high embattled, and, though they are not of the firft ages, yet it is very probable they fland upon the foundations of the ancient inftifiite, which got this town the name of "Trapeziunm," or "Trapezus." The pretent walls are built of the ruins of the ancient edifices, as appears by old pieces of marble let in several parts, and whose infcriptions are not legible, because they are too high. The town is large, and not well peopled; there are more woods and gardens in it than houses; and those houses that are there, though well built, are but one story high. The castle, which is pretty large, but very much neglected, is situated upon a flat rock, and its ditches are cut in the rock. The infcription that is on the gate of this castle, the arch whereof is a semi-circle, shows that the emperor Justinian repaired the edifices of the town. The port of Trebifond, called "Platanus," is to the eaf of the town. The emperor Adrian caufed it to be repaired, as we are informed by Arrian. This port is now proper for nothing but faques. The mole which the Genoese are said to have built there is almost destroyed, and the Turks give themselves very little trouble about repairing such works; 150 miles N.E. of Sivas. N. lat. 41° 15', E. long. 37° 40'.

TREBITSCH, or TREBITZ, a town of Moravia, in the circle of Iglau, on the Iglawa, with considerable manufactures of cloth, iron, glafs, &c.; 20 miles S.E. of Iglau. N. lat. 40° 14', E. long. 15° 50'.

TREBITZ, a town of Saxony; 3 miles N.N.W. of Schmiedeberg.

TREBIUS, in Ichthyology, a name given by Joannes Cuba, and some other writers, to the fish called Plexis by Aristotle, Ælian, and Pliny.

TREBLE, in Music, the highest or acutetl of the four parts in symphony, or that which is heard the clearest and shrillest in a concert.

In the like fense we say, a treble violon, treble hautboy, &c. In vocal music, the treble is usually committed to boys and girls. Their part is the treble.

The treble is divided into first or highest treble, and second or base treble. The half treble is the fame with the counter-tenor.

TREBLIZ, in Geography, a town of Bohemia, in the circle of Leitmeritz; 10 miles S.W. of Leitmeritz.

TREBZITZ, a town of Silefia, in the principality of Olens; 12 miles N. of Breslaw. N. lat. 51° 18', E. long. 17° 2'.

TREBNIZ, a town of Bohemia, in the circle of Leitmeritz; 6 miles S.W. of Leitmeritz.

TREBOWE. See TRIAU.

TREBSCHEN, a town of Brandenburg, in the New Mark; 6 miles S.E. of Zulichan.

TREBSEN, a town of Saxony, in the circle of Leipzic, on the Mulda; 26 miles W. of Meißen. N. lat. 51° 10', E. long. 13° 40'.

TREBUCHET, TREBUCHET, or Trebucbctum, a tumbler, ducking, or cucking-fool. See CUCKING-STOOL and SCOLPS.

The trebuchet, in Artillery, a machine for throwing flones, for which purpose a fling was sometimes fixed to it: it acted by means of a great weight fallened to the short arm of a lever, which being let fall, raised the end of the long arm with a great velocity.

TREBULATA MUTUSCA, in Ancient Geography, a town placed by Strabo and Pliny among the Sabines, the existence of which is testified by many infcriptions. Virgil recognizes it for its olives, which perhaps might have occasioned its being called "Oliveto."

TREBULATA SUFFENATA, a town of Italy, in the Sabine territory. It is suppos'd to have been situated in the valley of Turano, probably at the place called Rocca Simbaldia.

TREBURG, in Geography, a town of Erfte-Darmstadt; 10 miles W. of Darmstadt.

TREBUXENA, a town of Spain, in the kingdom of Seville; 12 miles from Xeres de la Frontera.

TRECASE, a town of Naples, in the province of Otranto; 5 miles E.N.E. of Alelano.

TRECASSOS, or TRICAS, in Ancient Geography, a people of Celtic or Lyonefse Gaul, according to Pliny and Ptolomey; subject, in the time of Cæsar, to the city of Sens (civitas Senonum), which was very powerful.

TRECATE, in Geography, a town of Italy, in the department of the Olona; 3 miles E. of Novara.

TRECCHINA, a town of Naples, in Baflica; 36 miles S. of Potenza.

TRECENTA, a town of Italy, in the department of the Mincio; 25 miles E.S.E. of Mantua.—Also, a town of Italy, in the department of the Lower Po; 12 miles N.W. of Ferrara.

TRECHEIPNA, TECHEIPNA, or TECHEIPNA, a town of Italy, in the department of the Mincio; 25 miles E.S.E. of Mantua. N. lat. 48° 11', E. long. 13° 22'.

TRECHEADIPNA, TECHEADIPNA, or TECHEADIPNA, a town of Italy, in the department of the Mincio; 25 miles E.S.E. of Mantua. N. lat. 48° 11', E. long. 13° 22'.

TRECHEINIA, in Geometry, a town of Bohemia, in the circle of Leitmeritz; 6 miles S.W. of Leitmeritz.

TRECHIS. See TRACHIS.

TRECHON, one of the many names by which the classical writers have called quicksilver.

TRECHTIC, in Geography, a township of New Hampshire; 65 miles N.W. of Portland.

TREDDLE, or TREADEL, CHALAZA, in Natural History, a part of an egg. See CHALAZA.

TREDAGILE. See ASPECT.

TRE, Armor, the firt and largest of the vegetable kind, confiding of a single trunk, out of which spring forth branches and leaves.

Mr. Ray distinguishes the trees and thrubs of our native growth of England into, 1. Such as have their fower disjoined and remote from the fruit: which are,

1. The nufciferous trees, or fuch as bear nuts: as the walnut-tree, the hazle-nut-tree, the beechn, the chestnut, and the common oak.

2. Coniferous trees, or fuch as bear a fquamous or fcaly fruit, of a conical figure, and a woody or hard fubfance, in which are many seeds, which, when they are ripe, the cone opens or gaps in all its feveral cells or parifions, and lets drop out: of this kind are the Scotch fir, male and female; the pine, which, in our gardens, is called the Scotch fir; the common alder-tree, and the birch-tree.

These trees are alfo called reiniferous, by reafon that coniferous trees are generally covered with a bark that abounds in resin.

3. Bacciferous
3. **Bacciferous** trees, are such as bear berries, as the juniper and yew-tree.

4. **Langetous** trees, or such as bear a woolly, downy substance; as the black, white, and trembling poplar, willows and osiers of all kinds.

5. Trees which bear their seeds (having an imperfect flower) in leafy membranes and cases; as the hornbeam, or hard-beam, called, in some places, the horn-beech.

II. Such as bear their fruits and flowers contiguous; which are either with the flower placed on the top of the fruit, or adhering to the base or bottom of the fruit. Of the former kind, some are pinnatifol, as apples and pears; and some bacciferous, as the forb, or service-tree, the white-thorn, or hawthorn, the wild rose, sweet-briar, currants, the great bilberry-bush, honey-suckle, ivy, &c.

The latter kinds are either such as have their fruit moist and soft when ripe: as, 1. **Pinnatifol** ones, whose fruit is pretty large and soft, with a stone in the middle; as the black-thorn, or sloe-tree, the black and white bullace-tree, the common wild cherry, the black cherry, &c.

2. **Bacciferous**, trees as the strawberry-tree common in the west of Ireland, mifletoe, waterelder, the dwarf or spurge-laurel, the viburnum, or wayfaring-tree, the dogberry-tree, the sea black-thorn, the berry-bearing elder, the privet, barberry, common elder, the holly, the buck-thorn, the berry-bearing heath, the bramble, and the spindle-tree or prickwood.

Or such as have their fruit dry when ripe: as the bladder-nut-tree, the box-tree, the common elm and ash, the maple, the gaule, or sweet willow, common heath-broom, dyer’s-weed, furze or gorse, and the lime-tree.

**Trees in full Air.** or Standards, are such as naturally rise a great height, and are not topped. See Standards, Standard-Trees, and Timber.

Trees, **Dwarf** are such as are kept low, and never suffered to have above half a foot of stem. These are used to be kept vacant, or hollow in the middle, that the branches, spreading round about the sides, may form a kind of round bowl, or bush. See Dwarf-Trees.

**Trees, Forst.** See Forest-Trees and Planting.

**Trees, Wall.** are those whose branches are stretched out, and nailed against walls.

For dwarf and wall-trees, such as to be chosen out of the nursery for transplantation as are straight, and consist of a single stem, and a single graft, rather than two or three grafts in several branches: their thickness at bottom, when removed, should be two or three inches.

**Trees, Fruit.** are such as bear fruit. See Fruit-Trees.

**Trees, Timber.** are those whose trunks are tall and straight, of which beams, masts, &c. are used to be made.

Trees that are nine inches girt about a yard from the ground, are commonly reckoned timber-trees, but none under this size. See Timber and Planting.

The growth of trees is a curious and interesting subject; but few experiments have been made in order satisfactorily to ascertain the annual accensions that are made to the bulk of trees at different periods of their age. Mr. Barker has furnished a table exhibiting the increase of three kinds of trees, viz. the oak, ash, and elm, in the Phil. Trans. for 1788. He states the result as follows:

"I find (says he) the growth of oak and ash to be nearly the same. I have some of both sorts planted at the same time, and in the same hedges, of which the oaks are the largest; but there is no certain rule as to that. The common growth of an oak or an ash is about an inch in girth in a year; some thriving ones will grow an inch and a half; the unthriving ones not so much. Great trees grow more timber in a year than small ones; for if the annual growth be an inch, a coat of one-sixth of an inch is laid on all round, and the timber added to the body every year is its length multiplied into the thickness of the coat and into the girth, and therefore the thicker the tree is, the more timber is added."

We will present our readers with a table, shewing the growth of 17 kinds of trees for two years. The trees grow at Cavenham in Suffolk.

<table>
<thead>
<tr>
<th>Names of Trees</th>
<th>July 1785</th>
<th>July 1786</th>
<th>July 1787</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Oak</td>
<td>0 1 0</td>
<td>0 1 1</td>
<td>0 1 0</td>
</tr>
<tr>
<td>2. Larch</td>
<td>0 1 2</td>
<td>0 1 3</td>
<td>0 1 2</td>
</tr>
<tr>
<td>3. Scotch fir</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>4. Spruce fir</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>5. Spanish cheefnut</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>6. Elm</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>7. Pinaster</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>8. Larch</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>9. Weymouth pine</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>10. Acacia</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>11. Beech</td>
<td>0 1 1</td>
<td>0 1 1</td>
<td>0 1 1</td>
</tr>
<tr>
<td>12. Plane occidental</td>
<td>0 1 1</td>
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<td>13. Lombardy poplar</td>
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<td>14. Black poplar</td>
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<td>15. Willow</td>
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<tr>
<td>16. Silver fir</td>
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<td>17. Lime</td>
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Heat is so essential to the growth of trees, that we see them grow larger and smaller in a fort of gradation as the climates in which they stand are more or less hot. The hottest countries yield, in general, the largest and tallest trees, and those also in much greater beauty and variety than the colder do; and even those plants which are common to both, arrive at a much greater bulk in the southern than in the northern climates; nay, there are some regions so bleak and chill, that they raise no vegetables at all to any considerable height. Greenland, Iceland, and the like places, afford no trees at all; and what shrubs grow in them are always little and low.

In the warmer climates, where trees grow to a moderate size, any accidental diminution of the common heat is found very greatly to impede vegetation; and even in England, the cold summers we sometimes have, give us an evident proof of this; for though the corn and low plants have succeeded well enough, and gooseberries, currants, raspberries, or other low shrubs, have brought forth fruit in sufficient plenty, yet the production of taller trees has been found very much hurt; and walnuts, apples, and pears, have been very scarce among us.

Heat, whatever be the producing cause, acts as well upon vegetation one way as another. Thus the heat of dung, and the artificial heat of coal-fires in flues, is found to supply the place of the sun.

Great numbers of the Indian trees, in their native soil, flower twice in a year, and some flower and bear ripe fruit all the year round; and it is observed of these last, that they are at once the most frequent and the most useful to the inhabitants; their fruits, which always hang on them in readiness, containing cool juices, which are good in fevers, and other of the common diseases of hot countries.

Plantations of useful trees might be made to very great advantage in many places in every country, and the country greatly
greatly enriched by it, while the public would be also benefited by it, since it would raise a continual supply of timber used in ship-building, and on other public as well as private occasions.

We have in many places heaths, and other barren and uncultivated lands, of very great extent; and how great an advantage would it be to the public to bring these to be truly valuable. Many, if not all of these heaths, would be found on trial capable of producing trees; and some of them are truly the remains of destroyed forests; and though the profit to be reaped from the planting of them would come late, yet the expense of doing it would be very trifling in comparison of that profit, and the means easy. See Timber and Plantation.

The authors who have given rules for planting, having employed themselves only about small spots of ground, the establishing of orchards or parks, are by no means to be supposed proper guides in attempts of this kind; and Monf. de Buffon, who had a great opinion of the knowledge of our Evelyn and Miller, who seem to speak of every thing from their own experience, found, when he let about large plantations, that their opinions and rules were erroneous; and was obliged to have recourse to experience only, which he varied a thousand ways; and though many of them proved unsuccessful, yet they all gave hints towards others, by which the attempt might afterwards be brought to succeed.

This frugal enquirer into the operations of nature in the growth of vegetables, having let apart a considerable quantity of land for the trial, and procured a number of young trees, first divided the whole quantity into a number of small squares, and having made a plan of it, examined the nature, depth, and other circumstances of the soil in each, and minuted the whole down on a proper part of the plan; that himself, or whoever succeeded him, might judge from the different growths of a number of trees planted in the same flat in these different soils, the different advantages and disadvantages of every circumstance in the depth and nature of the ground, in regard to the growth of useful trees. Different numbers of labourers were employed upon different spots of this ground, and the acorns for the young growth planted at different seasons: but the result in general was, that what should seem the best methods succeeded the worst; and those pieces where many labourers had been employed, and the acorns planted before winter, were much thinner of young oaks than those where the least labour had been bestowed upon the ground, and where the acorns had been planted in the spring; but those places which succeeded in the fowing, were those which had the acorns planted in holes made by a pick-axe, without any preceding cultive of the ground. And those where the acorns had only been laid upon the earth, under the grass, afforded a great number of vigorous young trees, though the greater part had been carried away by birds and other devouring animals. Those spots of ground where the acorns were let at six inches depth were much more nourished with young shoots, than those where they had been buried but at an inch deep; and in some places where they were buried at a foot deep not one shoot appeared, though in others, where they had been buried at nine inches, there were many.

Those acorns which had been steeped for eight or nine days in wine leaves, and in the water of the common levers, appeared out of the ground much earlier than those which were put in without this previous management.

But of the most successful of all the trials, was that of planting in the spring such acorns as had been found together in another place, and had time to shoot there; of these scarcely any one failed, and the plantation was perfectly flourishing, though the growth of these young shoots was not so quick or vigorous as those of the acorns which had remained when first sown; which was probably owing to the injury the tender radicles received in transplanting.

Thus succeeded the experiments by fowing, while of those made by planting young trees, such as had been brought out of woods and places under covert, succeeded much worse than those which had grown in more exposed places.

The young trees of the several parts of the plantation kept on their growth in the manner they had begun to shoot, those of the more labourous parts continuing more weak, and lower than those of the less labourous.

Thus were a number of necellary experiments carefully tried, and the refult of the whole was, that to make a plantation of oaks, on a soil of the common clayey or loamy kind, the most successful method is this: the acorns must be prefered during the winter in the earth in this manner: let there be made a bed of earth of six inches deep; on this place a layer of acorns, two inches deep; over these lay a bed of another half foot of earth, over that another layer of acorns, and so on successively, till as many are employed as there will be occasion for: the whole is then to be covered with a foot depth of earth to preserve all from the frost. In the beginning of March these beds are to be opened, and the acorns, which will by that time have shot out, and are then in reality fo many young oaks, are to be planted out a foot distance each, and the succese of a plantation of this kind need not be feared. This is a manner of planting that is done at a small expense, and even that might be in a great measure spared, were it not for the birds and other devouring animals; since, could the acorns be defended from these, they might be only laid on the surface of the ground under the grass in autumn, and they would infallibly shew themselves in so many young oaks the succeeding spring.

It is easy to continue the carrying of the acorns, when taken out of their winter's bed, to the place where they are to be planted, without doing them much injury; and the small stop the transplanting puts to their growth is in reality rather an advantage than an injury, since it only retards the young shoots for about three weeks, or less than that; and by that means secures them from the few cold mornings that may be expected about the time of their natural appearance. Mem. Acad. Scienc. Paris, 1759. See Timber.

An experiment to determine the comparative durability of different kinds of timber, when exposed to the weather, was made by a nobleman in Norfolk; of which an account is given by Sir Thomas Beevor. This nobleman, in the year 1741, ordered three polls, forming two sides of a quadrangle, to be fixed in the earth on a rising ground in his park. Into these polls were mortised planks, an inch and a half thick, cut out of trees from 30 to 45 years' growth. These, after standing ten years, were examined, and found in the following rate and condition:

The cedar was perfectly found; larch, the heart found, but the sap quite decayed; spruce fir, found; silver fir, in decay; Scotch fir, much decayed; pinaster, quite rotten; chestnut, perfectly found; akele, found; beech, found; walnut, in decay; fymare, much decayed; birch, quite rotten. Sir Thomas Beevor justly remarks, that the trees ought to have been of the same age; and Mr. Arthur Young adds, they ought to have been cut out of the same plantation.

The
The immense quantity of timber consumed of late years in ship-building and other purposes, has diminished in a very great degree the quantity produced in this country. On this account, many gentlemen who with their country, alarmed with the fear of a scarcity, have strongly recommended it to government to pay some attention to the cultivation and preservation of timber.

It appears, on the authority of Mr. Irving, inspector-general of imports and exports, that the shipping of England in 1760 amounted to 6167 in number, the tonnage being 433,912; and the shipping in Scotland amounted to 976 in number, the tonnage being 52,818. In 1788, the whole shipping of Britain and Ireland and their colonies amounted to 13,800, being 1,359,752 tons burden, and employing 107,025 men. The tonnage of the royal navy in the same year was 413,667. It also appears, from the report of the commissioners of the land revenue, that the quantity of oak-timber of English growth, delivered into the dock-yards from 1760 to 1788, was no less than 768,676 loads, and that the quantity used in the merchant's yards in the same time was 516,650 loads; in all 1,285,326 loads.

The foreign oak used in the fleet period was only 137,766 loads. So that after deducting the quantity remaining in the dock-yards in 1760 and 1788, and the foreign oak, there will remain about 1,054,284 loads of English oak, consumed in 28 years, which is at an average 37,653 loads per annum, besides from 8,300 to 10,000 loads expended annually by the East India Company within the same period.

Mr. Pitt, in the Bath Transactions, cited in the Encyclopedia Britannica, article Trees, says, that the aggregate of oaks felled in England and Wales for 30 years past, has amounted to 320,000 loads in a year; and as this statement seems to differ from that above given, under the authority of the commissioners of land revenue, we think it necessary to point out the reason of this difference. This we are enabled to do, by the liberal communication of the ingenious Samuel Purkis, esq. whose diligence of research and accuracy in making the necessary calculations, and fidelity in reporting the result of his inquiries, must be admitted by all who knew him without hesitation. He informs us, that the calculation was made by himself and a friend at the request of Mr. Pitt, then prime-minister, in order to ascertain whether there was a sufficient quantity of oak-timber in this country to supply the probable demand for many years.

The calculations were made from documents furnished by government, and upon principles which could not fail to afford an accurate result. This result was communicated by Mr. Purkis to Mr. South, a man of fortune and respectability in Hampshire, and was published by him in the Bath Transactions. The discrepancy above-mentioned is merely apparent, and not real. For the commissioners of the land revenue only stated the annual consumption in the royal navy, and by the East India Company; whereas Mr. Purkis's statement comprehended the annual consumption of the whole kingdom; nor had they the means which he possessed of making the latter estimate.

The building of a 20-gun ship, it is said, would take 40 acres of timber; and though this may seem to be an exaggerated estimate, it should be considered, that, according to the prevailing opinion of experienced surveyors, it will require a good soil and good management to produce 40 trees on an acre, which, in 100 years, may, at an average, be computed at two loads each.reckoning, therefore, two loads at 8l. 16s., one acre will be worth 350l. and consequently 40 acres will be only worth 14,200l. The building of a 70-gun ship is generally supposed to cost 70,000l.; and at ships do not last many years, the navy continually requires new ships, so that the forests must be fritted in a century or two, unless young trees are planted to supply their place.

As the consumption of oak-timber is so considerable, methods should be devised and diligently practiced for procuring a fresh supply.

Trees are liable to a variety of diseases and injuries, for the prevention or cure of which various means have been proposed.

The chevalier de Bienenberg of Prague, we are told, has discovered a method of effectually preserving trees in blossom from the fatal effects of those frosts which sometimes in the spring destroy the most promising hopes of a plentiful crop of fruit. His method is extremely simple. He surrounds the trunk of the tree in blossom with a wape of straw or hemp. The end of this he spins, by means of a flone tied to it, in a vessel of spring-water, at a little distance from the tree. One vessel will conveniently serve two trees; or the cord may be lengthened so as to surround several, before its end is plunged into the water. It is necessary that the vessel be placed in an open situation, and by no means shaded by the branches of the neighbouring trees, that the frost may produce all its effects on the water, by means of the cord communicating with it. This precaution is particularly necessary for those trees, the flowers of which appear nearly at the same time as the leaves; which trees are peculiarly exposed to the ravages of the frost. The proofs of its efficacy, which he had an opportunity of observing in the spring of 1787, were remarkably striking. Seven apricot cypresses, in his garden, began to blossom in the month of March. Fearing that they would suffer from the late frosts, he surrounded them with cords as above directed. In effect, pretty sharp frosts took place fix or eight nights: the appicot-trees in the neighbouring gardens were all frozen, and none of them produced any fruit, whilst each of the chevalier's produced fruit in abundance, which came to the greatest perfection. See Fröst.

For Mr. Forth's remedy, we refer to the article Composition for Trees. See also Grafting.

Mr. Ray, and other authors, speak of several trees of prodigious bulk.

The jesuit d'Acofia, in his History of the Indies, lib. iv. cap. 3, mentions a hollow tree at Tlacocharaya, three leagues from Guaxa, in New Spain, nine fathoms within side near the ground, and fifteen without side. He adds, that it is under this tree the barbarians assembled to perform their religious ceremonies, dance round their idols, &c. Herrera mentions another, which fifteen men, joining hands, could not fathom. And F. Kircher, in his Latinum, p. 50, affirms that he has seen a tree, near Gonzano, which would lodge a whole family of twenty-five persons in its cavity. The common people had a tradition, that this was planted by Augustus.

There are forests of very large chestnut-trees, growing out of the lava of mount Etna, in Sicily. One of these, called the Caltagno di Cento Cavalli, is much the most celebrated. It measures 204 feet round, and though said to be united below in one trunk, it is a bush of five large trees growing together. The hollow of one of these chestnut-trees is said to contain a hundred sheep, and it is also related, that thirty people have been in it on horseback. Brydson's Letters, vol. i. p. 109, &c. See Etna.

In the Indies there are very large forests formed from a single tree, whose branches bending to the ground, take root, and put forth new trees: the Indian fig-tree and parrotier are of this kind.

M. Lonvillers mentions trees in Peru, one part of whose branches produce fruit one half the year, and the other part
part the other half. In China there is a tree which bears tallow, of which that nation make their candles. See Sibera and Tallow.

Mr. Marsham saw spruce and silver firs in the dock-yard at Venice above forty yards long, and one of thirty-nine yards was eighteen inches in diameter at the smallest end. It was found that they were brought from Switzerland. Some yews have been found in Britain sixty feet round. Palms in Jamaica attain the height of 200 feet, and some of the pines in Norfolk island are 280 feet high.

At Tortworth, in Gloucestershire, it is said by the writer of the report on agriculture for that district, that a chesnut-tree was measured in 1791, which was found to be forty-four feet and four inches in circumference.

The great Boddington oak, belonging to the manor-farm of the name in the same district, before it was burnt down in 1790, either by accident or design, was not less remarkable. It grew in an old orchard-ground, and the following account was given of it by Marshall, in his work on planting, as it appeared in 1783. The stem was remarkably collected and snug at the root; the fides of its trunk more upright than those of large trees in general; its circumference at the ground somewhat more than eighteen yards, and at its smallest dimensions twelve. The greatest extent of arm, eight yards from the stem; and the greatest height of the branches, forty-five feet. The stem quite hollow, forming a capacious well-fixed room, measuring on the floor, one way, more than sixteen feet in diameter. At that time it was perfectly alive and fruitful, with a large fine crop of acorns upon it. Part of the trunk, it is said, escaped the fire, and still remains.

In Needwood forest, the oak-tree called the Swilcar lawn oak contains, as Mr. Pitt supposes, in his account of the agriculture of Staffordshire, at least a thousand feet of timber. The Rev. Mr. Snow says, this oak, the father of the forest, girt at five feet high twenty-one feet; the lower stem is ten feet clear; the whole height about sixty-five; the extent of the arms about forty-five feet. It is of great antiquity, but still fruitful in acorns.

In the first volume of the Agricultural Survey for the County of Elles, it is stated, that in Hatfield forest Sir John Barrington has a very beautiful oak, for which a timber-dealer offered one hundred guineas. And that near it is the ruin of a most venerable tree of the fame kind, which gave the name of Broad-Oak to Hatfield.

There is a Lombardy poplar in this district which is a very fine and beautiful tree, guelled to be above seventy feet high, and which at five feet from the ground measures seven feet three inches in circumference. It is one of the three original trees of this kind which were brought by lord Rochfort from Italy, and planted at St. Olyth above forty years ago, and from which much the greater part of those which are now scattered through the kingdom originated.

Very near it is the largest and most beautiful laurel of the Portugal kind that is almost any where to be seen; it is nearly of a semi-globular form; feathered all round to the lawn it grows in, and is fifty-two yards in circumference. At a small distance from these prodigies of vegetation is, it is said, another at least equally interrelling, an arb uterus, which would make no inconsiderable figure at Killarny. They are in the grounds of Mr. Naffau, in which the soil is a fine rich loam. See the Report.

There are now growing about Townley Hall, in Lancashire, besides many laxe fine oak timber-trees, an alder tree, called the wain-hoofe ash, which measures fourteen feet in circumference; a hazel-tree, which is three feet in girth; a yew-tree, which has fix feet two inches of girth; and a white-thorn, in New Copy field, which measures seven feet in circumference.

There are two or three very remarkable phenomena in the growth of trees, which have escaped the observation of the naturalists of all ages, except those of our own: these are the perpendicularity of their trunks or stems to the horizon, and the parallelism of their tufts to the spot of earth they grow on. See Parallelism and Perpendicularity.

For the planting, transplanting, fermentation, pruning, felling, grafting, throwing, &c. of trees. See Plantation, Planting, &c.

On felling of trees, letters have sometimes been found in the midst of them. We have instances of this kind mentioned in the Philos. Trans. No. 454, sect. 16, where the trunk of a beech being fawed, discovered several letters in the wood, about an inch and a half from the bark, and near the fame distance from the centre of the trunk. It seems these letters had been formerly cut into the bark, and in procès of time these might be covered.

In the same Transactions, we have an account of the horn of a deer found in the heart of an oak. Cruciferous plants have also been found in trees, and were of course flown as miraculous to the ignorant. See p. 236 of the said Transactions in the Remarks.

Trees are often found buried in the earth. See Morass, Fossil Wood, and Bog Wood.

For the punishment of stealing trees, see Larceny.

By flat. 1 Geo. I. c. 48. maliciously to set on fire any underwood, wood, or coppice, is made sngle felony. By the Black-aæ, to cut down or delivry any trees planted in an avenue, or growing in a garden, orchard, or plantation for ornament, shelter, or profit, is felony without benefit of clergy; and the hundred shall be chargeable for the damages, unless the offender be convicted. By 6 Geo. III. cap. 36. and cap. 48. wilfully to spoil or destroy any timber or other trees, roots, shrubs, or plants, is, for the two first offences, liable to pecuniary penalties; and for the third, if in the day-time, and even for the first, if at night, the offender shall be guilty of felony, and liable to transportation for seven years.

Trees, Discomposition of. See the preceding article, and Composition, &c.

Trees, Hollowness of. See Hollowness.

Trees, Juices of. See Juice and Sap.

Trees, Felling of. See Felling and Timber.

Trees, Parallelism of Rows of. See Parallelism.

Trees, Fruit, Barking of. See Rural Economy, the injury of their having the bark eaten off by hares and rabbits in the winter season. It is particularly the case with young apple and pear trees, and occasionally with forest-trees and shrubs. Several different methods of preventing it, and of protecting the trees, have been proposed at different times; such as twisting straw-ropes round the trees; driving in small flat flakes all about them; and the use of fume-scented oils. But better and nearer modes of effecting the business have lately been fuggelled in the Transactions of the Scotch Horticultural Society; as with hog's-lard, and as much whole-soil as will work it up into a thin paste or paint, with which the flums of the trees are to be gently rubbed upwards, at the time of the fall of the leaf. It may be done once in two years, and will, it is said, efficaciously prevent such animals from approaching them.

Another and still nearer method, is to take three pints of melted tallow to one pint of tar, mixing them well together over a gentle fire. Then, in the month of November, to take a small brush, and go over the rind or bark of the trees with the composition, in a milk-warm state, as this

Vol. XXXVI.
as it can be laid on with the brush. It is found that such a coating does not hinder the juices or sap from expanding in the smallest degree; and the efficacy of the plan is proved, in preventing the attacks of the animals, by applying the liquid composition to one tree and missing another, when it was found that the former was left, while the latter was attacked. Its efficacy has been shown by the experience of five years. The trees that were gone over the first two years have not been touched since; and none of them have been injured by the hares.

It is a mode particularly well adapted for nurseries, where the ground is not well secured with a fence to protect the young fruit-trees and tender shrubs from hares.

The above is the proportion of the materials, whatever may be the extent of trees.

Trees, Misting of, their becoming much affected and covered with the mols-plant or mossy fulblance. It is found to prevail in fruit-grounds of the apple kind, and in other situations, when they are in low, cloft, confined places, where the damp or moisture of the trees is not readily removed. It is thought to be an indication of weaknesses in the growth, or of a diseased state of the trees, and to require nice attention in preventing or eradicating it. The modes of removing it have usually been those of scraping, rubbing, and washing, but they are obviously calculated for trees only on a small scale. How far the use of powdery matters, such as lime, chalk, and others, which are capable of readily absorbing and taking up the wetness that may hang about the branches and other parts of the trees, by being well dusted over them, may be beneficial, is not known, but they would seem to promise success by the taking away the nourishment and support of the mols, when employed at proper seasons. And they are known to answer in destroying mos in some other cafes, when laid about the limbs of the plants, as in thorn-hedges, &c.

In the fruit-grounds of Gloucefsshire it is recommended, the writer of the account of the agriculture of that district says, to wash with soap-foads, and rub off the mos with a brush, in wet weather when it is soft, and easily separable from the different parts of the trees. This work should be begun at an early period of the growth of the trees, when the branches are few and open, and be repeated every season; otherwise the labour would be too great to undertake on a large extent, when the trees are full-headed, and entangled with shoots. The fruit-farmer should not, however, be too easily discouraged, since it has been discovered, that the eggs of caterpillars are often lodged between the mos and the rind of the trees, and probably the insects Issue forth from these depositaries in the spring, to the destruction of leaf and blossom.

In this district, the mousing of the trees is attributed to the plantations being made on grafs-lands, which is the common practice in a great part of the county; as, it is said, that in the neighboring counties, where the fruit-trees are planted in hop-grounds and arable fields, the trees, though not free, are less affected by it. This may, it is supposed, be owing to the frequent manuring and flirring of the mould near the roots, by which means the sun and rain have power to exert their influence, and by invigorating the fibres, promote a general kindliness in the growth of the trees.

The mousing in all sorts of trees is injurious to their growth by depriving them of a portion of their nourishment, but more particularly hurtful to those of the fruit-tree kind, as preventing them from bearing full good crops of fruit by rendering them in a weak and unhealthy state.

Trees, Espalier, Coff-iron Rails for, a new mode of forming this sort of rails. It is noticed in a Paper in the first volume of the Memoirs of the Caledonian Horticultural Society, that the advantages attending rails of this kind in gardens, in respect to utility as well as ornament, are well known and acknowledged. The greater chance they afford to the fruit in setting and ripening, by the branches being laid in at regular and equal distances, the neatness of appearance which the trees exhibit, and the elegant viftas produced by the rail and trees when bordering the sides of well-kept walks, are all matters with which the admirers of horticulture have long been acquainted. It does not appear, however, whatever may have been the cause, that this, by no means uninteresting branch of the art, has hitherto in any considerable degree engaged the attention of the improver.

The rails for trees of this kind have, for the most part, been made of wood, though not without objections; the principal of which is, want of durability in the fulblance; the difficulty of keeping them in a perfectly rectilinear position; and the elusiveness of appearance which they constantly, in some degree, exhibit, when made of the dimensions necessary for the proper extension of the trees.

The most usual modes of constructing such rails are two: first, the having upright splits of dried timber funk into the ground, and mortised into a horizontal top-rail. This is greatly objectionable on account of the speedy decay, and from the splits always foorn giving way where funk into the ground, as well as from its being fearlessly practicable to keep them straight. The second, or that which is the most generally practised, is to sink upright polts into ftones, to mortise two crofs-bars into them, and to nail upright fplits to the bars. The great defect in this mode is, that by the bulk of the polts, rails, and splits, so great a strain is thrown upon the ftones during high winds, that they cannot long resit it; and the consequence is, that the rail foon begins to twist, while the part funk into the ftones, in spite of every precaution, will at no great length of time decay, in conquence of moisture getting in between the wood and the ftones.

In order to obviate these objections, the substituition of espalier rails formed of call-iron instead of wood, has been proposed and tried with success by a gentleman in Dunbarfnshire, Scotland.

Each portion of rail is formed of two rails intersected at the different ends into handsome upright columns or polts, having erect arrows or pieces fixed into them, somewhat in the manner of common iron paling, the whole fheet or portion refing upon three supports at the bottom, in the way direcd below. The supports on which it stands are thus contrived: the centre one is a piece of seafoned oak, driven firmly into the ground, and sunk a little below its surface. It receives the upright middle arrow-piece, which keeps up the centre of the bottom rail, and through which the different upright arrow-pieces to each side of it are put. It is supported below the rail by two pieces of the same metal in a triangular manner. Those at the ends are ftones of two feet in length, having their tops hewn into an hemispherical shape, and perforated in the middle by a hole of four inches in depth, and two in diameter, which receives the bottom ends of the columns or polts. The upright arrow-pieces are each furnished with a raff at the places where they meet the top and bottom rail.

The columns or polts have the length of six feet, their bottoms being funk, as above, into the ftones: the diameter of them at the bottom rail is an inch and a half, and at the top, one inch and one-eighth: the upright arrow-pieces are five feet in length, and their diameter half an inch: the bottom rails are three-eighths of an inch in thicknes, and in breadth...
breadth one inch and five-eighths; the top ones three-fourths by one-fourth of an inch. The columns, at the parts where the rails enter them, have a flank projecting at right angles to them, with a hole, through which, and through a hole in the end of the rail, a leaden rivet is put, for fastening the rail to the column or post. See Treillage.

Tree, Onion, in Gardening, that fort of onion-plant which rives somewhat in the tree-like form, and which affords its produce or bulbs at the top of the stem or flalk. At what period this valuable and useful bulb-rooted plant was first introduced into this country, seems now to be quite uncertain; and it has never yet perhaps been grown or cultivated to any extent in any part, being mostly had in growth merely for the sake of curiosity. From a Paper inserted in the first volume of the Memoirs of the Caledonian Horticultural Society, it would appear, however, to be capable of being raised with advantage as a substitute, in part, for onions of the keeping kind, as might have been supposed from the foregoing nature of the climate from which it originally came.

In addition to the little which has been said of the nature of its culture for the purposes of ornament and variety under the head Allium, (which see,) the following observations on its culinary use may be given in this place.

It is stated, on the experience of some years, in the Paper alluded to above, that the root-bulbs, when two years old, put up each a stem from thirty inches to three feet in height, on which good-sized bulbs are formed at top: that there from these, others push out of a second size; and that sometimes a third set is produced, which are still smaller; but that the first and second fixes are the only ones which are fit for planting. Towards the end of summer, the top-bulbs are in a proper state for gathering, and should be collected and carefully dried in a shady place, then put in a dry airy situation, until the season for planting them out. At this time the old floor-bulbs should be lifted, which have mostly one or two onions to each of them, which are of good quality, and keep well until late in the following spring season.

About the last week in the month of April is the most proper time for planting out the young top-bulbs for the purpose of a crop, as if sooner planted, they are apt to puff that feallon, and better produce good floor-bulbs nor top-bulbs. The old roots should be planted out any time in the month of February, or the following one, as early planting has the power of making them produce good bulbs at top. The young bulbs of the first size should be separated and planted out in rows in any good garden ground, which is in an open situation, six inches by four: the second size in rows fix inches by three, in shallow drills of very little depth, as the swelling and ripening of the roots are spoiled when they are deep.

The whole of these will, it is said, produce onions of a good size, which will keep, when well taken care of, until the middle of May. The old floor-bulbs, when not all wanted for planting, will likewise keep equaly well; and after a sufficient flock of them has been provided, the rest may be used with the other principal sorts.

It is noticed that the old roots are the best for replanting for a crop of top-bulbs, as they are the most certain of running to items.

The writer has never known these crops to be infested with vermin in any flage of their growth; the reason of which is, it is thought, their quick growth and coming to maturity before the feallon at which vermin commonly attack the usual spring-fown roots, as it has been found that the late or autumn-sown crops of the common kind, when allowed to stand for an over-year produce, are seldom or ever affected in this way, even on light dry ground.

This sort of onion, besides its property of long keeping, is a strong well-flavoured kind, equal, if not superior, to most of the common sorts.

It is, however, perhaps the best calculated for private gardens, as requiring a good deal of attention, as in such, when once provided with a certain quantity of floor-bulbs, the proprietor would be rendered independent of the failure of the crops of common onions; and it is confidently afferted, that if the cultivation of it were generally well understood, it would be capable of being grown with both pleasure and profit in a great many cattle.

Tree, Celandine. See Bocconia.

Tree, Cork. See Cork and Oak.

Tree, Chief. See Agnus Cauilus.

Tree of Life, Arbor vitae, in Botany. See Thuja.

The occidenta], which grows naturally in Canada and other northern countries, is used, according to professor Kalm, for many medicinal purposes. It is much extolled for rheumatic pains; with this intention the fresh leaves are pounded in a mortar, and mixed with hog's grease, or any other grease; this is boiled together, till it becomes a false, which is spread on linen, and applied to the part where the pain is. This false gives certain relief in a short time.

Against violent pains which move up and down in the thighs, and sometimes spread all over the body, they recommend four-fifths of the leaves of polypody (polypodium fernae pinnata, &c.) and one-fifth of the cones of the thuja, reduced separately to a coarse powder, and afterwards mixed. With this powder, and milk-warm water, they make a poultice, which they spread on linen, and wrap round the body; but they commonly lay a cloth between it and the body, otherwise it would burn and fcorch the skin.

The decoction of thuja leaves is used as a remedy for the cough; and they use this at Saratoga for the intermitting fever.

Tree-Frog. See Ranunculus Viridus.

Tree, Germander. See Teucrimum.

Tree, Mallow. See Laverata.

Tree, Mealy, or White-leaf. See Wayfaring-Tree.

Tree-Myrt, a species of Lichen; which see.

Tree, Primrose. See Oenothera.

Tree, Louts. See Apis.

Tree, Diana's, in Chemistry. See Arbor.

Tree, Dormant. See Dormant.

Tree-Fold, in Sheep-farming, a term applied to that fort of sheep-fold which is formed or surrounded by trees in the growing flate, and which is well suited for protecting them in certain exposed situations, as well as affording them other advantages. See Sheep.

Trees, in a Ship, arc of several forts, as chef's-trees, crown-trees, roof-trees, wattle-trees, trussel-trees. See Chess-trees, &c.

Tree Island, in Geography, a small island in the Indian sea, near the coast of Africa. N. lat. 17° 16'.—Alto, a small island in the East Indian sea, near the E. coast of Sumatra. S. lat. 13° 50'. E. long. 103° 51'.—Alto, a small island near the W. coast of Sumatra. S. lat. 12° 58'. E. long. 100° 15'.—Alto, an island in the bay of Bengal, near the coast of Ava. N. lat. 18° 12'. E. long. 94° 15'.

TREE-A-TOP ISLAND, one of the Chusan islands, which undoubtedly deferred the appellation given to it, when it was first described by the Europeans above half a century ago, at which time they were permitted to trade to Chusan.
but the tree is gone, and this island, which is as bare as the
thick surrounding it, is only known by its relative position
in the chart. To the southward of this island, about three
or four miles, there is excellent anchorage in five or six
fathoms water, where the ships are sheltered from every wind.

**TREE-NOILS,** or **TRENLGELS,** in a Ship, are long cy-
nindrical wooden pins, employed to connect the planks of a
ship's side and bottom to the corresponding timbers, and to
fasten the anchor-flock.

The tree-nails are justly esteemed superior to spike-nails
or bolts, which are liable to rust and loosen, as well as to
rot the timber: but it is necessary that the oak of which
they are formed should be solid, close, and reptile with gum,
to prevent them from breaking and rotting in the ship's
frame. They ought also to be well dried, so as to fill their
holes when swelled with moisture. They have usually one
inch in thickness to 100 feet in the vessel's length: so that
the tree-nails of a ship that is 100 feet long, are one inch in
diameter, and one inch and a half for a ship of 150 feet.

**TREET,** **TUFTICUM,** in our **Statutes,** is used for fine
wheat. See flat. 51 Hen. III. Hence **treet-bred.** See
**BREAD.**

**TREFALLO, To,** in **Husbandry,** is to plough land
the third time before sowing.

**TREFEN,** in **Geography,** a river of Carinthia, which
runs into the Drave, 6 miles below Villach.

**TREFORT,** a town of France, in the department of
the Ain; 7 miles N.E. of Bourg-en-Bresse. N. lat. 46° 10'.
E. long. 5° 27'.

**TREFURT,** a town of Weilphalia, in the territory
of Eichsfeld; 10 miles W.S.W. of Muhlhausen.—Also,
a town of Germany, in the principality of Hefte-Rhinefs,
situated on a hill near the Werra; 36 miles E.S.E. of Caffel.
N. lat. 51° 8'. E. long. 10° 18'.

**TREFOIL,** in **Architecture,** the usual mode of orna-
menting an arch in the pointed style by the insertion of a
suf or point on eaeh side of it. Other trefoils are infebrbed
within a circle, and resemble a head of clover-grafs more
perfectly.

**TREFOIL,** in **Botany.** See **TRIFOLIUM.**

Trefoil is a plant of the clover kind, which is not unfre-
quently sown or met with in grafs-lands. It is always a
valuable plant in such grounds as are kept under a permanen-
ltate of grafs; and not much lefs useful, when sown and
cultivated in theohe of the arable kind. See **CLOVER**
and **MEDICAGO LUPALINA.**

It succeeds well on folks of different descriptions, as on
thohe of the dry, loamy, and the calcareous kinds and qua-
Ities. It was found to succeed perfectly on the lime-brash
kinds, by Mr. Davis, in Oxfordshire; and it has been
greatly advised for the chalky and some other dry forts, by
Mr. Boys of Kent. It is constantly known to answer well
in all the lefs moist loams. It is a plant, however, which
has been objected to by some farmers, as being only a bien-
nial; but as it yields its feeds annually in great abundance,
this is probably a matter of little consequence; and it is well
known to seldom wear out of lands, in which it has been
once well established. Its feed is readily procured, and
with little expense or trouble.

The plant is of much lefs growth than that of common
clover, being considerably slenderer in the stem or flalk part;
yet notwithstanding this, it is not unfrequently sown with
crops of the grain kinds, in the manner of that grafs-feed.
The proportion of feed, which is made use of in such cafes,
is usually about three pottles, or two gallons, when per-
fectly cleared of the hulks; but when in the contrary state,
two busheels are mostly the quantity that is sufficient for the
purpose. These quantities should, however, be constantly
varied, according to the nature, circumstances, and condi-
tions of the lands.

By some it is supposed to be a beneficial practice to sow
it in these ways, especially where large flocks of animals are
kept; as with the oats or wheats in the spring feaon, when
they are to be followed with grain in the next; as, by this
means, good feed is provided in the fluffles for the flock,
in the latter part of the summer and in the autumnal months,
while, at the same time, the land is left free for the pur-
oposes of tillage in the spring. When it is employed in the
way of laying down land for pasture, as it is always of much
importance to the farmer to have such land to produce a
full crop the first year, this is proper; and as there are
some grafs-plants which require two or more years to etab-
lish themselves, and acquire their full growth, while others
arrive at their extreme and perfect size and expansion the
first year after being sown; some of the latter sort should
constantly be had recourse to, among which this should
never be neglected, as it is found, in most cafes, to be
highly valuable and useful in such circumstances. Hence,
too, the advantage of mixing it with other fown grafs-feeds
is shown in different instances. Some farmers consider
the quantity of four pounds of trefoil-feed to the acre as to
small a proportion; and think it an improvement to either
double the quantity, or to add as much red clover-feed,
which is probably the preferable method. In this quantity,
it is supposed, they will not injure the other grafs-feeds
which may be sown at the same time, but furnish a copious
vegetation, until the other may come to perfection; at
which period, both the trefoil and clover have a natural ten-
dency to disappear and be worn out of the land.

Trefoil is said to produce excellent pasturage for cattle-
flock, but to be more particularly calculated for sheep,
when either in mixture with clover or alone, as it is found
not to be so liable to hurt them by dwelling oroving them
as clover. It is of great importance in the feeding and sup-
port of sheep, in consequence of its being more early than
clover, and its coming in well after the consummation of the
rye and turnip crops, before the clovers become ready in the
spring feaon.

The writer of the "**Experienced Farmer**" states, that this,
by some, is supposed a better plant, and that sheep are
not fond of it, but that he must own that nothing within the
comps of his experience has led him to form such an
opinion. It vegetates about a month earlier than white
clover, and long before the rye-grafs is exhausted. But it
is thought improper for being sown alone, except for the
express purpofe of raising feed. There are no folks, it is
thought, proper for trefoil but what are capable of pro-
ducing rye-grafs and white clover. Hay made from
this plant alone, is a pretty hay, but seldom abundant in
produce. It is conceived that more trefoil is capable of
being raised on any fort of land, in any quantity, by fowing
rye-grafs among it, than without; as it has been observed
that trefoil, like the vine and pea, wants support from some
stronger material to which it may cling. For this reason it
propers well with red clover, round which its tendrils twine
as woodbines in a thorn-hedge. It is believed, too, that the
crop of clover will be very little lefs in quantity or weight
from the trefoil growing in a fate of mixture with it.
The after-grafs of trefoil is considered as not worth much,
on which account some recommend it to be followed with
wheat, but it can be declared on the grounds of constant
experience, that land intended for wheat, cannot possibly
be
be too much smothered with crops of every fort of the close-growing shady kinds.

It has been flated by a late writer, that upon light and poor sandy soils, or lands on which clover does not succeed well, it is common handbury to trefoil with a portion of white clover and rye-grafts, with the intention of leaving it two years. If this cafe, six pounds of trefoil, four of white clover, and half a bushel of rye-grafts feeds are the common quantities. These are with the intention of providing sheep-feed.

Where trefoil is left for hay, it does not afford a large produce, but a fort which is highly useful and advantageous as a sheep-fodder in the winter season, and lefs wasteful than most other kinds, when used in that way. At the same time, it is suppoed to be lefs troublesome in the process of making into hay. However, it is afderted by Mr. Kent that it readily runs together, and becomes mouldy by wet.

The feed is to be collected from the second floot, in the same manner as in common clover, the produce being in general from fix to eight buflhels of clear feed from three acres. In districts where it is grown for the feed, the crops are mown in the beginning of July; the heads or husks being often threshed off the straw in the field on a cloth, and then fold by the quarter to those who have mills and collect them, who grind the feed out of the husks, and then dispose of it to others, in different places, for the use of the farmers in those districts where it is rarely faved. The acre mostly produces from about four or five to ten quarters in the hulk, each of which affords about two bushels of clean feed when grown boldly in this intention.

This plant has often the names of black-grafts, nonsuch, yellow clover, and others, given it by writers on husbandry.

There are other different sorts or varieties of this plant occasionally cultivated by the farmer, such as the trefoil termed bird's-foot, which has been found useful when cultivated in meadows that are inclined to be moif, as growing to a great height, and affording an excellent hay. In some places too it is raised as pasturage for sheep. Also the trefoil called by the name of hop, which is often confounded with the real trefoil, as being nearly of the same duration, but which is more grateful to animals. The trefoils seem, on the whole, not to be fo much diereribated by agricultural writers, as their importance as artificial grafts would appear to demand. Besides, much confusion is introduced in confluence of the diversity of their provincial titles. It has been remarked, that as fome are annual, fome biennial, and others perennial, where the two former sorts are fown where it is intended to have a permanent paffure, disappointment muif of necefly be the confluence.

Trefoil, Bean. See Cyftisus; which fee.

Trefoil, Sticking Bean. See Anagyris.

Trefoil, Bird's-foot. See Lotifus.

The fruit of the lotus was, by the ancients, imagined to be endowed with the virtue of making strangers forget their native country.

Trefoil, Mayfi. See Menyanthes.

Trefoil, Moon. See Medicago.

Trefoil, Shrubby. See Ptelea.

The fecond species of this genus, or the ptelea with fingle leaves, was formerly known for the tea-tree in many of the European gardens, where it many years paffed for it among thofe who knew no better.

Trefoil, Snail. See Medicago and Lucerne.

Trefoil of Canthius, Thorny. See Fagonia.

Trefoil, Bajie Tree. See Cyftisus.

The ancient botanifts feem to have been acquainted with two very different shrubs under the name cyftisus; and there have been no small errors about the true meaning of several paffages in Dioscorides and Theophratus, on occasion of the miftaking one of these things for another. Dioscorides describes the cyftisus, as being a shrub with leaves white and hoary, both on the upper and under fide; and of no ufe, or value, to mankind; as to its wood, Pliny tranflates this account, and adds to it from Hyginus, that it was a very hardy and ftrong shrub, not being affected by heat or cold, snow or hail, or any other injuries of the weather, nor of its enemies, as Pliny expresses it (boflum). It is not very easy to conceive what enemies these should be; but the moft probable conjecture, as to this odd paffage, is, that Pliny had tranfcribed it in his usual carelefs way, and that what is called boflum, should be the word noftrum.

The fenfe then is clear enough; the author had juft before faid that the wood was good for no ufe to mankind; and, therefore, when he was fpaking of the trees flanding a long time, and fearing the injuries of no weather, he might very well add, nor of us; for the wood being good for nothing, men would not be at the trouble of cutting it up. It is plain, however, that Theophratus means quite a different shrub by this name cyftisus; for, as Dioscorides fays, that the wood of his was white throughout, and very light. Theophratus obferves, that it was black at the heart, and as heavy and folid as ebony; and, in many places, where he speaks of the hard and elegant woods used for inlaying, he mentions the cyftisus wood, coupling it with the ebony, heart of oak, and other the hardefl and moft elegant woods known in his time.

Pliny mentions no other cyftisus than that of Dioscorides, which was the common kind cultivated by the Greeks and Romans, as a food for cattle; he fays it was raised by feed, and came to its perfection in three years, and that it was gathered in the spring juft after the time of its flowering; he adds, that this was usually the office of children, or old women, unfit for other work, and was the cheapest of all the offices of husbandry. It is easy to conceive, that such a shrub as the cyftisus of Theophratus, with a wood as firm as the heart of oak, and hard as ebony, did not come to perfection in three years from the fowing; nor could any more be cut up by boys and old women, than eaten by cattle when taken up. There were, therefore, two kinds of cyftisus among the ancients, the one fown and cultivated as food for cattle, the other a wild tree, or shrub, growing in woods, and being larger than the fown kind. Dioscorides and Pliny defcribe the firit, and Theophratus alone the latter, except that Pliny has now and then taken a fentence from Theophratus, when he mentions the cyftisus occasionally among other hard woods, and placed it to the account of his manured cyftisus.

Ovid, indeed, where he mentions the cyftisus as a wild wood shrub, certainly means this kind mentioned by Theophratus:

"Nec teneris cyftisus curvate tineas abierit."

And Columells acknowledges both kinds. It may feem a natural objection, that culture could never make such a difference in this plant, as that it should be hard and black in the wood in its wild state, and soft and white in the cultivated kind. But we are not to fuppofe that the cultivated and wild cyftisus were the fame fpecies of shrub, only altered by these two rates. The ancients were not fo accurate in their names as later botanical writers have been; and if a wood-shrub, in some respects, resembled their manured cyftisus, they would call it by that name, though it
had not all the generical characters to make it fame. COLUMella, de R. R. lib. ix. cap. 4.

TREFUMEL, in Geography, a town of France, in the department of the North Coasts; 6 miles S. of Dinan.

TREGARON, or TREV GARN, or Garon, a small market-town in the hundred of Pen-Arth, and county of Cardigan, South Wales, is situated in a valley watered by the river Berwyn, a contributory stream to the Teifi; 18 miles S. by E. from Aberystwyth, and 170 miles W. from London. It was formerly a corporate town, but for some improper conduct at the election of a member to serve in parliament in the year 1742, the house of commons voted that the corporation had forfeited their charter. A weekly market is held on Tuesday, and an annual fair of three days' continuance in March. The church, which is a spacious structure of very rude masonry, consists of a nave and chancel: it stands on a rocky eminence, regularly circular, and forming an elevated centre to the town. In the churchyard are the remains of a Druidical circle, with the spaces filled up with stone-walling. The parish of Tregaron, which extends nine miles in length, and four miles in breadth, comprehends eight parishes or townships, and, according to the population return of the year 1811, contains 2121 houses, and 1732 inhabitants. At a place called Cauffell Flemys, in this parish, is a very large interment of a semi-circular form, well defended on three sides by a moat. On a hill called Penbhwfour are three heaps of stones, called Carneddau, sepulchral monuments of Druidical origin; and a bank of raised earth runs in a straight line for several miles, in this parish as well as that of Gwynws, and is said to lead into the sea, called "the furrow of Bannow's oxen," the same as were said to be employed in building the church of Llandewi Brefi. But it is probably the remains of an old British road. Thomas Jones, an eminent antiquary and poet, who lived at the end of the sixteenth century, was a native of Tregaron.

Malkins's Scenery, &c. of South Wales, 2 vols. 8vo. 1807.


TREGIANO, a town of Naples, in the province of Bari; 6 miles E.S.E. of Bittetto.

TREGONY, a market-town and borough in the western division of the hundred of Powder, and county of Cornwall, England; is situated on the river Fal, 8 miles E. from Truro, 40 miles S.W. from Launceston, and 250 miles S.W. by W. from London. This town was formerly a place of some consequence, but fell to decay when Truro began to flourish, and attract its trade and population. Tregony lent two members to parliament in the reign of Edward I.; and after a long dispute, recovered its ancient privilege in the year 1559: the right of election is vested in the.houfekeepers: the number of voters who polled in the year 1812 was 183, the exact number of houfes returned under the population act of 1811; the number of inhabitants were therein flated to be 923. The town confifts principally of one long street. It was ancienfly governed by a portreeve, or mayor; but in the year 1620, king James I. granted it a charter of incorporation. The market, which is on Saturday, is held by prescription: Henry de Pomeroy certified his right to it in the reign of Edward I. Henry III. granted a fair to the said Henry in the year 1266. Here are now five fairs. Both the fairs and market have for many years been in a declining state; till the middle of the last century, they were very confiderable; and particularly noted for the sale of woollen cloth, of which there was an extensive manufactory in the town. Tregony castle, of which there are now no remains, is said to have been built by Henry de Pomeroy at the time king Richard I. was in the Holy Land; it was fanding, and was the seat of the Pomeroids, in the reign of Edward VI. In the year 1566, Hugh Bofcawen found an hospital for decayed houfekeepers, and endowed it with lands, now let at 50/- per annum, but capable of being foon raised to three times that value. On the north side of the town flood, what is called, Old Tregony, where was a church dedicated to St. James, the walls of which were standing till about the middle of the last century.

On the opposite bank of the Fal, is Trewarthicken, the seat of Francis Gregor, esq. The house is fted on an elevated piece of ground, abounding with fine groves, and commanding a variety of interefting prospects.

About two miles south-west of Tregony, is Ruan Lanhorne, a village feated on the banks of the Fal, of which the Rev. John Whitaker, the learned historian of Manchester, was nearly forty years the refident rector. He died Nov. 4, 1808, in the 73d year of his age, and lies buried within the rails of the communion-table.—Lylons's Magna Britannia, vol. iii. Cornwall, 1814. Beauties of England and Wales, vol. ii. Cornwall; by J. Britton and E. W. Brayley, 1802.

TREGULIER, a fee-port town of France, in the department of the North Coasts, on a peninsula, near the English Channel; before the revolution the fee of a bishop; 9 miles N.E. of Lannion. N. lat. 48° 47'. W. long. 3° 8'.—Alfo, a river of France, which runs into the English Channel, 6 miles N. of Treguer. N. lat. 48° 51'. W. long. 3° 8'.

TREIA, in Ancient Geography, a town of Italy, in Picenum, S.E. of Cingulum.

TREIJA, in Geography, a town of the Popedom, in the marquisate of Ancona; 6 miles W. of Macerata.

TREGIGNAC, a town of France, in the department of the Correze; 16 miles N. of Tulle.

TREIGNY, a town of France, in the department of the Yonne; 9 miles S.E. of St. Fargeau.

TREILLAGE, in Gardening, a sort of rail-work consisting of ranges of light posts and railings, for the purpose of training espalier trees to, and occasionally for wall-trees, where the walls do not admit of nailing the branches immediately against them; likewise for training wall-trees in forcing-frames, &c. They are made in different ways for use and ornament, as well as of different dimensions, from four or five to fix or seven feet high.

For common espalier fruit-trees in the open ground they are absolutely necessary, and may either be formed of common stakes and rails nailed together, or of regular joinery work.

The cheapest and the eafeft, and soonest made treillage for common espalier trees, is that formed with any kind of straight poles or stakes of under-wood, as cut in the coppices, being then cut into proper lengths, and driven into the ground in a range at distances of a foot each, all of an equal height, and then nailed along the top with the fame kind of poles, to preface the whole flat and firm in a regular position. See Espalier.

And to render these firll stronger, two or three horizontal ranges of rods may be nailed along the back part of the uprights, a foot or eighteen inches asunder. The more elegant and ornamental treillages are formed with regularly squared posts and rails of hard timber, neatly planed and framed together; having for this purpose deal or oak posts, uniformly worked two or three inches square; but if the main posts are of oak, it will be of advantage
TRELAZE, in Geography, a town of Jamaica; 60 miles N.W. of Kingston. N. lat. 18° 21'. W. long. 77° 42'.
TRELAZE, a town of France, in the department of the Mayne and Loire; 3 miles E.S.E. of Angers.
TRELECH, a town of England, in the county of Monmouth; 5 miles S. of Monmouth.
TRELLIS, or TRELLIS, in Gardening, a term sometimes employed to signify the frame as treillage, or a lighter and less strong sort of wooden frame-work of this nature, which is sometimes used in particular situations and circumstances. See TRELLAGE.
TRELOIN, in Geography, a town of France, in the department of the North; 9 miles S.E. of Avefnes.
TRELOOBING, in Mining, denotes a stirring and working the loods or flimsy earth of tin, &c. in a flume-pit, that the mud may be partly washed off with the water, and the ore settle at bottom.
TRELOU, in Geography, a town of France, in the department of the Aisne, on the Marne; 9 miles E. of Chateau Thierry.
Female, on the same plant, above the male, Cal. as in the male, permanent. Cor. none. Pét. Germin superior, roundish, depressed; style none; stigma two, short, villos. Peric. Drupa roundish, somewhat depredded, single-seeded. Sec. Nut minute, pierced with several holes.
1. T. cannabina. Cay Rach chico of the Cochinchinefe. —Native of the woods of Cochinchina. A tree of middling size, with a filamentous bark, and ascending branches. Leaves alternate, ovato-lanceolate with a long point, ferrated, downy. Flowers on axillary branched flanks. Drupa yellow.—We know nothing of this plant but from the above description.
TREMANDREAE, a new natural order of plants, pointed out by Mr. Brown in his truly excellent and instructive "Remarks on the Botany of Terra Australis," published at the end of captain Flinders's Voyage. This order is founded on the genus TETRATHEA, (see that article,) and another from the same country, named by Mr. Brown Tremandra, apparently from τρέμανος, a perforation, and σως, a man, because of the pores of the anthers. The characters of the order are thus given.

Calyx
Calyx of four or five equal leaves, overlapping each other in the bud. Petals four or five, equal, involute, and enfoldig the flaminig, before expansion. Stamens eight or ten, below the germen, distinct; anthers attached by their base, of two or four cells, burling by either a tube or pore at the summit. Germen (superior) of two cells, with from one to three pendulous seeds in each; style one; stigma one or two. Calyptra of two cells, and two valves, with partitions from their centres. Seeds albuminous, with a naked face, and an appendage at the opposite extremity; embryo in the axis of the flasky albumen, and half as long again, radicle directed towards the face. The plants are humble herbs, resembling Erics, with either flattened or whorled leaves, destitute of stipulae. Their flowers axillary, and single-flowered.

Mr. Brown prefers the name he has chosen for this order to one derived, as it ought in right of priority to be, from Tetralbea; because it better describes the structure of the flaminig in both genera: the four distinct cells not existing in the ripe state of the anthers of Tremendra, nor even of all the species of Tetralbea. We are well aware of the truth of his attention, that bilocular anthers in general have each cell divided by the inflexed valves, till they burst, being while young truly quadrilocular. We were however of opinion, in founding the genus Tetralbea, that the four cells being permanent, afforded an excellent name, as well as character. If this character does not exist in every species, it may be less important; but that it is not found in Tremandra, surely renders it the more descriptive of Tetralbea.

Mr. Brown proceeds to remark, that the writer of this, Labillardiere, has mistaken the fongous appendage to the apex of the seed for an umbilical caruncula, or appendage to the face; hence one end of the seed was taken for the other, and they were supposed erect, not pendulous; Labillardiere moreover was thus led to conceive that the radicle pointed towards the face.

The Tremandra, as Mr. Brown observes, are nearly related to Polygalae, but he objects them sufficiently distinct from the latter, not only in the regularity of the flower, and structure of the anther, but in the inflexion, or manner of folding, of both calyx and corolla; in the appendage of the seed being at its apex; and, it may be added, in the tendency to produce an indefinite number of seeds in each cell. We would rather contend than dilate the number of natural orders, as well as genera, and with respect to the first reason of our learned friend, we would recall a remark of the famous Corea, that every natural order contains some regular and some irregular-flowered genera. The different inflexion is perhaps a necessary consequence of the last-mentioned difference. The other characters are freely of small account in this cafe.

"The greater number of Tremendra are found in the principal parallel of New Holland. They extend also to the south end of Van Diemen's island, but none have been observed within the tropic."
TREMELLA.


Fructification scarcely perceptible, in a membranous, gelatinous, expanded, undulated subfance.

Nothing is more uncertain than the generic character, and even the natural order, of Tremella. The genus feems made up of various gelatinous productions, in which no traces of fructification have been detected. Having no fhiels, tubercles or warts, they could not be referred to Lichen or its allies; neither have they feeds imbedded throughout their subfance, to make them Uloce; much lefs any aggregated feeds with or without a perceptible pericarp, as in Fucus. They moreover differ from both the latter genera, in not being fubmerfed Alge; for the aquatic fpecies are, as Roth and Perfoon obferve, much better excluded. The able cryptogamifl laft named refers Tremella to the order of Fungi; but without any attempt to fhow that they produce powdery feeds from the surface of a hymeinum, or superficial memfbrane; a moft material character of fuch fungi (see that article) as have not a real pericarp with numerouf enclosed feeds. Their habit indeed is effentially dif- ferent. They are repeatedly revivefcent by means of moisture, thriving in a wet atmofphere only, though not living immerfed in water. In thefes particulars they agree exactly with the Lichenes, not with genuine fungi; which lafc, though they generally flourifh in humidity, are fcarcely revivefcent after having been dried up. The various fpecies, of which Perfoon defines twenty-four, are generally parafitical, on the bark or branches of living trees, or on dead wood. We doubt the reality of feveral, which appear to us mere gummy excudations of the plants on which they are found. This will prefently form a fubjeft of enquiry. We propofe to detail all the British fpecies, real or fuppofed, along with any exotic ones that feem particularly worthy of notice.

We are not much fatisfied with Perfoon's fections of this genus, nor do we think it advisable to adopt them here, on account of the uncertainities above-menlioned. Our determina- tion does not arise from any difrepref for that excellent author, one of the moft methodical and accurate in this obfcrve and much neglected lepth.

T. mefenterica. Plaited Yellow Tremella. Retz. Prodri. 294. Perf. n. 1. Dickf. Crypt. falc. 1. 14. Engl. Bot. t. 709. (T. mefenteriformis; Jacq. Mif. Altr. v. 1. t. 142. t. 13. T. juniperina; Hudf. n. 1. Nolte Luteum, menef- teri form.; Vaill. Parif. t. 14. f. 4.)—Seffile, cluftered, plaited, lobed, waved, orange-coloured.—Found in rainy weather in the autumn and spring, on dead branches of oak and other trees, or on decayed clumps of brown or fufce; never on living wood or bark. This very flaking and con- fpicuous fpecies forms clumps of various dimensions, from one to four inches broad, of a rich orange hue, more or lefs deep; when young pale or whift. The fubfance is soft and flexible, neither vifcid, nor very tender. In dry weather, or after being gathered, it thins, becomes hard, and assumes a dirty brown colour; but revifes in moisture. Little faltie or fmall is perceptible in any part, nor has any fign of fructification been discoverd. Yet the plant appears to be annual, and confequently must be propagated by feed.

T. lutefgens. Soft Yellowifh Tremella. Perf. n. 2. Ic. et Derf. Fung. 43. t. 8. f. 9.—"Convolute, extremely soft, deliquefcent, pale yellow."—Obferved by Perfoon on Vol. XXXVI. the branches of beech in autumn, but rarely. Half an inch broad, and of a fotfer subfance than the foregoing. We are unaquainted with this fpecies.

T. perfetfens. Perennial Purplifh Tremella. Bulliard Fung. v. 1. 223. t. 304.—Horizontal, leafy, somewhat coriaceus, smooth, undulated, pale violet.—Found on the ftems of the Savine, Juniperus Sabina, according to Bulliard, laffing for a number of fuccufive years. When the conduc- tive is hardly diftinguifhable from the black fcales of the bark; but in very moist or rainy weather it appears in the form of horizontal leaves, half an inch or more in length, bluntly rounded and lobed, of a pale vinous purple. Bulliard.

T. ferruginea. Plaited Ruftie Tremella. Engl. Bot. t. 1452.—Seffile, cluftered, lobed, waved, of a rufty-brown; the surface finely pubefcent.—Obferved by the late Mr. Crowe, at Lakenham, near Norwich, growing on dead wood, in wet weather in winter, compofing plaited con- vuluted tufts, three or four inches broad, pliable and tender, thrived and fhapeleafes when dry, reving imperfectly with moisture. The fegments are rounded and waved, not lobed or notifed; their colour a rich brown, white within the surface finely downy, or rather covered with pale veined undulated granulations, interfeted with brown irregular fpecks, more like fructification than any thing elfe that has fallen under ouf notice in this genus, except perhaps that Bulliard defcribes in the following fpecies.

T. verticallis. Upright Dark-purple Tremella. Bulliard Fung. v. 1. t. 272. (T. mefenteriformis violacea; Ibid. v. 1. 230. t. 499. f. 6, X, Y.)—Cluftered, erect, lobed, finu- ated and plaited, smooth.—Found on decayed clumps of trees in autumn. Of a vinous violet-colour when young; afterwards of a blackifh red-brown. It always grows erect, from one to four inches high, gelatinous and elastic, crack- ling between the teeth. Laid when fresh on glafs or white paper, it difcharges from every point of its surface a very fine powder, fuppofed to be the feeds. This answers to the nature of fungi, and high microfopic examinations are re- quisite to determine how these feeds are produced; whether in feries of eight together, from cells of the upper furface, as in Peziza, see that article; or in a lefs regular manner, from pores of the hymenium involving the under furface. Bulliard has finally reduced the prefent fpecies to a variety of his mefenteriformis; but it is very diftinct in many effential points from our mefenterica, and we cannot but fuppofe him to have here confused feveral fthings together. His original verticallis is faid to be valuable for its colouring principle. When boiled in water for many hours, by which the form and colour of the plant are not altered, it yields a deep brown, likely to be ufeful in dyeing. For liming, Bulliard obtained by infufion of this Tremella in fimple water, a fine reddifh fibile-colour, very durable, and pre- ferable to any that he could buy in the shops.

T. intumescens. Brown Tumid Tremella. Engl. Bot. t. 1870.—Seffile, cluftered, twifted, tumid, brown, fhining and gelatinous; when dry thin and membraneous.—Gathere- red by Mr. W. Borrer, in January 1807, on a beech in St. Leo- nard's foreft, Suffolk. This confifts of roundifh soft pulpy maifes, two or three inches broad, convolute and inflated, like the intumeftes of fome animal, of a darkith, dull, not red, brown; but with a fhining vifcid furface, obscurely doted. When cut, brown verteal freaks are obfervable a little way into the fubfance, which may contain the feeds, though none have as yet been detected.

T. moriformis. Mulberry Tremella. Engl. Bot. t. 2446. —Seffile, cluftered, twifted, black, opaque; internally fhely, deep purple.—Found by Mr. C. E. Sowerby, on pales and rails in Surry, early in June. This grows fettle, on ex- polled
posed wrought wood, in roundish or oblong, tumid, fuscous masses, various in length from a quarter to an inch, not unlike mulberries, but coal-black; their infide only is of a rich deep purple, and the centre is attached by a strong root. The plant communicates a violet stain to whatever it touches in drying.

T. farcioides. Fleasy Tremella. With v. 4. 78. Engl. Bot. t. 2450. (T. amethyften; Bulliard Fung. v. 1. 229. t. 499. f. 5. With. v. 4. 82. Helvela farcioides; Dickf. Crypt. v. 1. 21. Bolt. Fung. v. 3. 101. f. 101. f. 2. Lichen farcioides; Jacq. Misc. v. 2. 378. t. 22. Elvella purpurea; Schaff. Fung. v. 4. 114. t. 323. f. 242.)—Seville, gelatinous, roundish, undulated, blackish, beft with mammillary white-headed procifiees on the upper fide.—Common in autumn and winter on the decaying trunks of trees, and dead ficks, ofpecially the Alder. The Englih name, according to Dillenius, arofe from the plant being fuppofed efficacious againijf witches, when thrown into the fire. It confifts of roundish, unequal, lobed, indeter-

T. vorcinis. Bladder Tremella. (Bulliard Fung. v. 1. 224. t. 427. f. 3. Engl. Bot. t. 2451.)—Membranous, somewhat rigid, brownish-white, pouch-like, filled with fivicid evanefcent jelly.—Found by the late Mr. Jacob Raycr, near Maidftone, Kent. Bulliard fpeaks of it as very rare. It always grows on the ground, solitary or in tufts, attached by fibrous radicles. When young, the plant is a turgid, firm, but elafic, bag, full of fivicid jelly, and nearly upright, from one to three inches high. The jelly in time efapes, by a rupture in the bag, which collapses, and looks like a fresh bladder, juft emptied. From its or-

T. flaccida. Pendulous Black Tremella. Engl. Bot. t. 2452.—Membranous, thin, fivice and pendulous, very black; externally opaque and roughfih; internally corrugated.—Found by Mr. Sowerby on the perpendicular trunk of a living oak in Peterham park. Several fimcimens, two or three inches long, grew one above another, pendulous, in a bell-shaped manner, fo that the outer surface, naturally inferior, became uppermost, and when fresh refembled black crape in colour and roughnefs; the coneace part being paler, smooth and shining, marked with coarse reticulated veins. This fpecies, except its polition, feems moft akin to Bulliard's fuppofed variety of his Peziza nigra, v. 1. 238. t. 116, which we cannot conceive to belong to his t. 462. f. 1.

T. Auricula. Jew's-car Tremella. Linn. Sp. Pl. 1625. Perf. n. 9. Bulliard Fung. t. 427. f. 2. Engl. Bot. t. 2447. (Peziza Auricula; Bulliard Fung. v. 1. 241. Agaricum auricula fforme; Mich. Gen. 123. t. 66. f. 1.)—Seville, leathey, reddish-brown; rough beneath; rugged and plafted above, refembling an ear.—Not rare upon roten elder-trees. Perfoon fays he never found this fpecies in any other fitation. It forms large tufts of irruguaylarly plafted and convo- luted fleathy cups, of a femi-transparent reddifh-brown; the inner or upper surface palett, smooth and thinning; the outer darkfet, opaque and roughpifh. The plats branch from the middle, fo as to convey an idea of the human ear; whether Jewifh, Pagan, or Christian, depends on the compofition or elegantnes of the prototype. Bulliard afferts the feeds to be difcharged from the upper surface entirely. If this be correct, he is fuppofed in transferring the plant to Peziza.


T. beatoftorm. Brown Rough-backed Tremella. Engl. Bot. t. 1819.—Nearly fivice, fcattered, roundifh, defpuffed, brown; smooth and thinning above; rough and dotted be-
tion by Paracelsus, or any other chemist, as Geoffroy, cited by Dillenius, nits; from which those fapist philosophers hoped to extract an universal solvent, or medicine; we feel little courage or curiosity to enquire. The subject is as unprofitable as Geoffroy's own analyses of various plants, the only advantage of which is to prevent any similar mode of investigation in future.

tered, membranous, containing a fluid. — Frequent on the mud of ditches and ponds, partly dried up, in autumn, in various places round London. Innumerable crowded, somewhat flakled, globules, each about the size of mustard-

...
TRE

and rough to the touch, and scratch glass when rubbed upon it under water. By this property it may always be distinguished from asbestos, to which it bears a considerable resemblance.

_Afternoon tremolite_ (amphibole blanc and foysolé of Haiiy) is of various shades of white. It occurs massive in wedge-shaped or foliaceous concretions. The structure is fibrous and radiated; it is translucent on the edges, and somewhat brittle and feathery. The specific gravity is 2.683. It melts before the blowpipe into an opaque white mass. When rubbed or struck in the dark, it emits a pale reddish-coloured light; when thrown on hot coals, it gives out a greenish-coloured light.

_Tremolite_ occurs most frequently in granular foliated lime-stone, or in dolomite. It is sometimes found in chlorite, and more rarely in trap-rocks. It occurs at Gleneg in Inverness-shire, in Aberdeneshire, and Incolmhill, and in basalt at the castle-rock of Edinburgh. It is found also in various parts of Europe, and in granular lime-stone with augite on mount Vevuis.

_Common tremolite_ (grammatite, Haiiy) occurs of various shades of white, and sometimes dark smoke-grey. It occurs massive and crystallized. The primitive form of the crystal, according to Haiiy, is an oblique prism, with a rhomboidal base, the planes of which are inclined at an angle of 127° and 53°. The more common form of the crystals is a very acute rhomboidal prism, with the edges more or less truncated, and the lateral planes longitudinally streaked.

This mineral splits easily, not only in the direction of the planes of the crystal, but also in that of its diagonals. When one of the prisms is broken across, we may observe a line strongly marked in the direction of the principal diagonal; hence it may at first sight be considered as a twin crystal, but this is not the fact.

_Common tremolite_ is translucent or semi-transparent; it scratches glass, is brittle, and is fusible, but with great difficulty, by the blowpipe. According to Brongniart, the crystals of tremolite are rarely found pure, but generally contain a portion of the accompanying rock in the interior. The constituent parts are stated as under:

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<th>Cherevan.</th>
<th>Langier.</th>
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<tr>
<td>Silex</td>
<td>27.0</td>
<td>50</td>
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<tr>
<td>Magnesia</td>
<td>21.0</td>
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<td>Lime</td>
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<td>Alumine</td>
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<td>Carbonic acid</td>
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It occurs in the same situations as asbestos, tremolite, and also in metalliferous beds, and sometimes in serpentine and granite.

_Glaff tremolite._—Its colours are the same as those of common tremolite. It occurs massive, and in acicular crystals. The luster is shining, but in a less degree than that of common tremolite. It is translucent and rather brittle. The constituent parts of this mineral vary in different specimens. According to Langier, the tremolite from St. Gothard varies as under:

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<td>Silex</td>
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<tr>
<td>Lime</td>
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<td>Magnesia</td>
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<td>Water and</td>
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<td>Carbonic acid</td>
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Though tremolite is arranged under a distinct species from hornblende and actinolite by professor Jameson, it is classed under the same family. In a general view he observes, that tremolite is characterized by its white colours, actinolite by its light green colours, and hornblende by its dark green colours. The Count de Bourbon states, that the phosphorescence of tremolite is owing to an intermixture with dolomite, and when the latter mineral is separated from it by acids, the property is destroyed.

_TREMONT_, in Geography, a town of France, in the department of the Maine and Loire; 3 miles E.N.E. of Vihiers.

_TREMOR_, in Medicine. See PALSY.

_Tremor of the Heart._ See PALPITATION.

_Tremorel_, in Geography, a town of France, in the department of the North Coasts; 8 miles S. of Broons.

_Tremouille, la_, a town of France, in the department of the Vienne; 6 miles E. of Montmorillon. N. lat. 46° 28'. E. long. 1° 7'.

_Treme_, a town of Spain, in Catalonia, on the Noguera Palaire; 20 miles N. of Balaguer.

_Trembuttel_, a town of the duchy of Holstein; 20 miles E. of Hamburg.

_Tremula_, in Ancient Geography, a town of Africa, in Mauritania Tingitana, upon the route from Ptolemais to Tingis. Ant. Itin.—Also, a town of Hulfania, belonging to the Baftian.

_Trench_, in Agriculture, a narrow opening or furrow cut in land by the plough or plough, for the purpose of draining or watering, and some other uses. Also, a small opening made in digging and working land over in different cales, and in laying it up both in ploughing and gardening. See SPRING and SURFACE DRAIN, WATERING LAND, RIDGES, and RIDING-up.

The cutting should be very exact for the two first purposes, the different sorts of materials raised being laid to the different sides of the trenches, which, in the latter case, are now mostly made in the wedge form.

Many of the bogs in Ireland have been drained, and made good ground, by only digging trenches round them.

_Trench Filled-Drain_, that fort of surface-drain which is laid with some kind of material for affording a proper passage to the water in its lower part, the upper being covered in with loose earth. See SURFACE DRAIN.

_Trench-Planting_, in Agriculture and Gardening, the practice of setting and putting out plants and other productive matters in trenches. It is a method which is had recourse to for many different sorts of crops in each of these departments of cultivation. In the former for potatoes and some others, and in the latter for a very great number of plants and roots, as is seen under their different heads.

It has lately too been practised for asparagus, and some other crops, with very great success. In planting this valuable vegetable in this way, it was done in the early spring, the ground being first dug to the depth of eighteen inches, and well incorporated with rotten dung quite to the surface; a trench four or five inches deep was then formed, in which the plants, at the time twelve inches in height, were planted at three inches apart, keeping the tops perfectly upright, and breaking or hurting the roots as little as possible, covering them in with the plaud, and treading them gently with the foot; after which the work was finished by a good watering. The plants fearfully flagged at all, though no care had been taken to preserve the mould about their roots, and not one of them died, but they far surpassed in the course of the summer those in the seed-bed rows, and some of them were capable of being cut the following year, in consequence of their great progress. The soil had a large proportion of peat-earth in it.
Sea-kale has likewise been raised in trenches with great advantage. They were made the same depth as above, eight inches of loose foil being left in the bottom, with which, six inches depth of river-land were then intimately blended. The trench was now a foot deep, and being filled with fix inches more of very light sandy loam, and the whole mixed together, was sown in a line along the middle; and as the plants grew they were earthed up. The plants became, in this mode, so stout in the second year, as to be made use of by being blanched by means of straw skimmed loosely over them, removing it as it became wet and heavy.

There are probably many other plants, feeds, and roots, that have notyet been tried, which may be raised in this method of planting with great success and advantage.

Trench-Plough, in Agriculture, that sort of tool of this kind, which is contrived for the purpose of opening and working land to a much greater depth than the common kind, so as to allow tap-rooted plants to strike them deeper, and form them better. See Plough and Tat-Root.

Trench-Ploughing, the practice of opening and loofening the foil of lands to a great depth by means of such ploughs, which is a method that is essentially necessary where the roots of crops are to shoot and strike down to great depths, as without it such roots are incapable of being grown in the best and most profitable manner. The work is sometimes performed at one operation, but in other cafes the tool does it by going twice in the same track, rendering the earth loofe, and capable of being penetrated to a still greater depth. This mode of preparing land is much too little had recourse to by farmers in many cafes.

Trenches, in Fortification, are ditches which the besiegers cut, to approach more securely to the place attacked; whence they are also called lines of approach. See Parallels.

They say, mount the trenches, that is, go upon duty in them. To relieve the trenches, is to relieve such as have been upon duty there.

The enemy is said to have cleared the trenches, when they have driven away, or killed, the soldiers who guarded them.

Trench, Tail of the, is the place where it was begun: and the head, to which it was carried.

Trenches are of several sorts, according to the nature of the soil: if the adjacent territory be rocky, the trench is only an elevation of basins, gabions, wool-packs, or earthenments of earth, cast round about the place; but where the ground may be easily opened, the trench is dug in it, and bordered with a parapet on the side of the besieged.

The breadth of the trenches is from eight to ten feet, and the depth from fix to seven: they are cut in talus, oraffle.

The trenches are to be carried on with winding-lines, in some manner parallel to the works of the fortrefs; fo as not to be in view of the enemy, nor to expose their length to the enemy's shot; for then they will be in danger of being embalmed, or covered by the enemy's cannon: this carrying of the trenches obliquely, they call carrying them by sideches, or returns. See Parallels.

Trenches, Opening of the, is when the besiegers begin to work upon the line of approaches; which is usually done in the night; sometimes within musket-shot, and sometimes within half, or only whole cannon-shot of the place, if there be no rising ground about it, the garrison strong, and their cannon well served.

The workmen that open the trenches, are always supported by bodies of men against the falls of the besieged; and sometimes those bodies lie between them and the place, as also on their right and left.

The pioneers sometimes work on their knees; and the men that are to support them, lie flat on their faces, in order to avoid the enemy's shot; and the pioneers are likewise usually covered with mantlets, or faucions.

Trench-Guard. See Guard.

Trench the Ballast, To, is a sea-phrase, signifying to divide the ballast into several trenches in a ship's hold.

TRENCHARD, John, in Biography, a political writer, was the son of Sir John Trenchard, secretary of state under king William, and born in 1669. Liberally educated, he was placed in one of the inns of court, with a view to the study of law. He was called to the bar, but as he preferred a political life, he abandoned the profession, and obtained the place of the commissioner of the forfeited estates in Ireland. Having acquired considerable wealth by marriage, by the death of an uncle, and by the decease of his father in 1695, he came into parliament for the borough of Taunton, and appeared as a patriotic member and writer. He was a zealous opponent of a standing army; and soon after the peace of Ryeck in 1697, which rendered needlefs such a force, he published a pamphlet, entitled "An Argument shewing that a Standing Army is inconsistent with a free Government, and absolutely destructive to the Constitution of the English Monarchy." This was followed, in 1698, by "A Short History of Standing Armies in England." These pamphlets are supposed to have occasioned the king's giving away his Dutch guards, and the army's being reduced to a very low establishment. In many subsequent years, Mr. Trenchard continued to write occasionally in favour of liberty; and having taken Thomas Gordon, a person of similar sentiments, into his house, they began in 1720 to publish periodically a series of papers, entitled "Cato's Letters," for the professed purpose of promoting civil and religious liberty. Trenchard died in 1723, at the age of fifty-four; and Gordon published his eulogy in the "Independent Whig," Biog. Brit.

TRENCHES, in Heraldry. See Trenché.

Trenches's Island, in Geography, an island near the coast of South Carolina; 25 miles in circumference. N. lat. 32° 13'. W. long. 89° 58'.

TRENCING, in Agriculture, the operation and practice of working over land in trenches by the spade. It is had recourse to in bringing some kinds of waste lands into cultivation, in some cafes and particular situations, as in the northern parts of the island, where labour is cheap; but in others it is mostly too expensive.

It, however, answers sometimes in cafes where it could hardly have been expected, on account of its being so very complete, as scarcely to require anything being done afterwards to the ground.

The term also signifies the laying up land in the ridge form, either by the spade or plough.

TRENCHMORE, the name of an old English dance; of which nothing certain is now known, but that it was a lively movement.

TRENC, Frederic, Baron von, in Biography, an adventurer, was descended from a noble Prussian family, and born at Konigfberg in 1726. Having been too much indulged in his youth, and losing his father when he was twelve years of age, he became ungovernable, and the sport of his own impetuous passions. In 1742, at the age of sixteen years, he entered into the Prussian guards, then quartered at Potsdam. In 1744, at the commencement of the second Silesian war, he entered the king as an aide-de-camp; but being suspected of a traitorous correspondence, he was arrested, and confined in the prison of Glattz, and failing in his first attempt to make his escape from prison, he at length succeeded.
ceded by bribery, and got safe to Bohemia, and afterwards to Elbing, in Polish Prussia, in March 1747. After various adventures he arrived at Moscow, where he informed himself into the good graces of the lady of the grand- chancellor Beflouch, the favourite of Elizabeth. From Moscow he made a circuitous tour to Vienna, with a view of recovering some contended property; and dissatisfied with the reception he found at the Austrian court, he determined to return again to Russia; but in passing through Dantzie, he was arrested at the request of the Prussian republic, and committed to prison at Magdeburg, where he remained ten years. Here he amused himself, during a tedious and rigorous imprisonment, in writing verses. which, long after his release in 1763, he published at Frankfort on the Main, in 1769. He published some other works at Aix-la-Chapelle, where he became editor of a gazette, and married a lady of respectable character and connections. Finding the occupation of a gazette-writer tiresome and not lucrative, he began business as a wine-merchant: but the wine-trade not answering his expectations, he disappeared about the year 1783. In 1792 he edited a journal at Hamburg and Altona, and from the latter place he removed to France, where he left his life by the guillotine in the month of July 1794. The Memoirs of his own Life appeared at Berlin in 1787, in two parts, 8vo. Of the authenticity of the facts related in these memoirs, great doubts have been entertained. His life, translated into French by himself, was published at Paris in 1789, 3 vols. 8vo. A new edition of his "Macedonian Hero" was printed in 1788, Franckfort and Leipfick, 8vo. Gen. Biog.

TRENCSIN, in Geography, a town and castle of Hungary, near the river Waag, situate on a rock, and defended by a very strong castle. Near it are some hot baths; 20 miles N.N.W. of Topoltzan.

TREND, that part of the flock of an anchor from which the fize is taken.

TRENDING, in Rural Economy, the operation or practice of freeing wool from filth of different kinds. It is usually done by persons who are called tenders, and who are appointed and sworn for the purpose. In most sheep-districts, the bell wool is always understood to have gone through this process, and then to be worth two or three fullings the tod more than other untreated wool. The fleeces in such cafes are neatly rolled together, and bound with oyer or with bands in some places. It is sometimes termed tendering. See Sheep and Wool.

TRENDLE, a term signifying the wheel of a barrow, or any thing which turns round in that manner when the low wheel kind.

TRENNO, in Geography, a town of Italy, in the department of the Olona; 4 miles N.W. of Milan.

TRENSDorf, a town of Bavaria, in the bishopric of Bamberg; 4 miles S. of Bamberg.

TRENT, a city of the county of Tyrol; in Latin Tridentum, called by the Italians Trento, and by the Germans Trient; and situated upon the Adige or Etch, in a very fruitful valley, surrounded with high hills. It was built by the Cenomani Gaus, who were dispossessed by the Romans. The Goths became masters of it when they came into Italy, and after them the Lombards. Afterwards it was possessed by the German emperors, until 1337, when Wencelhaus, son to Charles IV., gave it to the church of Rome. Afterwards its bishops, being made princes of the empire, became temporal as well as spiritual lords of the city. Some authors affirm that the name Tridentum is derived from Neptune's sceptre, or trident, to whom they say the city was once consecrated. This opinion took its rise from an ancient marble being found there, on which was a Neptune holding his trident. Others derive the name from three rivers and torrents that fall into the Adige, a little above and below the city. Others say it owes its name to three high rocks in the neighbourhood, which appear like three teeth, tres dentes. The bishop was a prince of the empire, and temporal as well as spiritual lord of his diocese, which is of very considerable extent; but notwithstanding the sovereignty of the bishop, the city of Trent has its own distinct privileges, and magistrate to prefer them: these consist of two burgo-males, who preside by turns, and twelve counsellors. Trent contains no streets exactly regular, but the antique style. Besides the cathedral, there are three parish churches, a college, and some convents: 55 miles N. of Maestri. N. lat. 46°. E. long. 11° 5'.

TRENT, a princely bishopric of Germany, situated in the Tyrol, in which this ancient bishopric was gradually increased by the liberality of the ancient Roman emperors. Though the bishop of Trent, after the revolution ratified in the reeves of the empire, at Augsburg, in the year 1548, held of the archducal house of Austria, as a land fief, yet he enjoyed, as an immediate prince of the empire, both a seat and voice at the diet, in the college of princes of the empire, and likewise actually sent deputies to the diet of the empire. This privilege was also a flate of the circle of Austria. Among the indemnities agreed to at Ratibon, in 1802, the bishopric was given to the grand duke of Tuscany, as archduke of Austria. It was afterwards ceded to Bavaria.

TRENTO, a town of the island of Rugen; 11 miles N.W. of Bergen.

TRENT, a river of England, which rises in the north-west part of Staffordshire, on the borders of Cheshire, about six miles south-west from Leek; taking a south-east direction, it crosses the county to the borders of Leicestershire and Derbyshire; it then takes a north-east direction, and crosses the county of Derby and Nottingham to Newark, from whence its direction becomes nearly due south, till after passing a small part in the north of Lincolnshire, it joins the Ouse, and the two streams form the Humber. Canals are made or making, to open a communication between this river and various parts of the kingdom, e.g. from the mouth of the Idle, below Gainborough, to Redford and Chelferfield; to Lincoln, and from thence to Tatterfall, Horncastle, Seaford, Boston, and the sea; from near Nottingham, to Cromford and Winfler; from the mouth of the Derwent, one branch through the counties of Derby, Stafford, and Chester, to the Mersey, which is joined with another branch to Coventry and Birmingham, where it meets with the canal from Brentford: other branches join the Thames at Lechlade, the Avon at Warwick, the Severn at Worcester, and many others. The Trent is of itself navigable from Burton in Staffordshire.

TRENT, a river of Canada, which runs from Rice lake to Lake Ontario.—Alfo, a river of North Carolina, which runs into the Neufce, at Newbern.

TRENT, Council of, in Ecclesiastical History, denotes the council assembled by Paul III. in 1545, and continued by 35 lefions till the year 1563, under Julius III. and Pius IV., in order to correct, illustrate, and fix with perplicity, the doctrine of the church, to restore the vigour of its discipline, and to reform the lives of its ministers. But it has been a matter of complaint by many, both in and out of the communion of the church of Rome, that this assembly, instead of reforming ancient abuses, rather gave rise to new enormities. It is alleged, that opinions of the scholastic doctors on intricate
intricate points, which had been left undecided, were by this
enactment, and the new laws, that had been the church, more intricate and
perplexed, and which really multiplies and propagates, in
stead of diminishing and suppressing them: that matters were
decided in this assembly, according to the despotic will of
the Roman pontiff, without regard to the dictates of truth,
or the authority of Scripture; and that the few wise and
pious regulations that were made in this council, were never
supported by the authority of the church, but suffered to
degenerate into a mere lifeless form or shadow of law, which
was treated with indifference, and transgressed with impunity.
It will not, therefore, appear surprising, that there are
certain doctors in the Romish church, who, instead of
submitting to the decisions of the council of Trent, as an
ultimate rule of faith, maintain that these decisions are to be
explained by the dictates of Scripture and the language of
tradition: nor can we wonder that this council has not
every where the fame degree of credit and authority, even in
those countries that profess the Roman Catholic religion.
Some countries, indeed, such as Germany, Poland, and
Italy, have adopted implicitly and absolutely the decrees of
this council, without the least restriction. But in other
places it has been received and acknowledged on certain
conditions, which modify, not a little, its pretended author-
ity. Among these latter we may reckon the Spanish do-
minions, which, during many years, disputed the authority
of this council, and at length acknowledged it only so far as
it could be adopted without any prejudice to the rights
and prerogatives of the king of Spain. In other countries,
such as France and Hungary, it has never been solemnly
received or publicly acknowledged. Indeed in the former of
these kingdoms, those decrees of Trent that relate to points
of religious doctrine, tacitly and imperceptibly through the
power of custom, acquired the force and authority of a rule
of faith; but those which regard external discipline, spiri-
tual power, and ecclesiastical government, have been con-
stantly rejected, both in a public and private manner, as in-
consistent with the authority and prerogatives of the throne,
and prejudicial to the rights and liberties of the Gallican
church.

Notwithstanding the preceding remarks, the decrees of the council of Trent, together with the creed of pope
Pius IV., contain a summary of the principal heads of the
Roman Catholic religion. See POPERY.

However, in these decrees and confession of faith, many
things are expressed in a vague and ambiguous manner, with
a view to the intellelive divisions then prevalent in the church:
and several tenets are omitted in both, which no Roman Ca-
tholic is allowed to deny, or even to question. But it must
be acknowledged, that in these decrees, and in this confession,
several doctrines and rules of worship particularly pertaining
to the doctrine of purgatory, the invocation of saints, and the
worship of images and relics, are inculcated in a much more
rational and decent manner than that in which they appear
in the daily service of the church, and in the public practice
of its members: and it is to be observed, that in deducing a
just notion of the doctrine of Rome from the decrees of the
council of Trent, regard ought to be had, not so much to
the terms made ufe of in these decrees, as to the real signifi-
cation of these terms, which must be drawn from the cus-
toms, institutions, and observances, that are, everywhere,
Eng. ed. 8vo.

Trent, Council of, congregation for interpreting the decrees
of the, is a congregation, the plan of which was formed by
Pius IV. and afterwards instituted and confirmed by
Sixtus V. It was authorized to examine and decide, in
the name of the pope, all matters of small moment relating
to ecclesiastical discipline; while every debate of any con-
sequence, and particularly all disquisitions concerning points
of faith and doctrine, were left to the decision of the pontiff
alone, as the great oracle of the church. Hence it was,
that the approbation of Innocent XI. was refused to the
artful and insidious work of Boffuet, bishop of Meaux,
entitled "An Exposition of the Doctrine of the Catholic
Church," until the author had suppressed entirely the first
edition of that work; and made corrections and alterations
in the second. See POPERY.

But though the court of Rome, and all those who favour
the despotic pretensions of its pontiff, maintain, that he
alone who governs the church as Christ's viceregent, is
entitled to explain and determine the fcnse of scripture and
tradition in matters pertaining to salvation, and that a devout and unlimited obedience is due to his decisions; yet
it has been impossible to persuade the wiser part of the
Roman Catholic body to acknowledge this exclusive author-
ity in their head. And consequently, the greater part of the
Gallican church, and a considerable number of learned
men of the popifh religion in other countries, think very
differently from the court of Rome on this subject. They
maintain, that all bishops and doctors have a right to con-
Sult the sacred fountains of scripture and tradition, and to
draw from thence the rules of faith and manners for them-
selves and their flock; and that all difficult points and
debates of consequence are to be referred to the cognizance
See INFALLIBLE.

Trental, Triennial, or Tricennial, a Romish
office for the dead, confituting of thirty masses, rehearsed for
thirty days successively after the party's death.

The trental is thus called from the Italian, trenta, tri-
ginta, thirty. It is mentioned anno primo Edw. VI.

Trenton, in Geography, a town of New Jer-
y, in the county of Hunterdon, on the E. side of the Delaw-
re. Here the legislature flately met, the supreme court fit,
and most of the public offices are kept. The court-house is
a handsome building. There is a flourishing academy, and
the number of inhabitants is about 3000; 24 miles N.N.E.
of Philadelphia. N. lat. 4° 13'. W. long. 74° 48'.—
Also, a poll-town of the province of Maine, in the county
of Hancock, containing 501 inhabitants; 31 miles N.E.
of Penobscot.—Also, a town of North Carolina, on the
river Trent; 20 miles S.S.W. of Newbern.—Also, a poll-
township of New York, in Oneida county, 12 miles N.
of Utica; bounded northwvrd by Steuben and Remsen, easterly by West Canada creek or Herkimer county, S. by Deer-
field, and W. by Floyd. The town is well watered by small
streams, and by springs. The soil is good: the forest
woods are elm, linden or bals-wood, butternut, beech, map-
y, &c. The inhabitants are principally of New Eng-
land decent, though some are of the ancient Dutch from
Holland, and their industry is well rewarded by the pro-
ducts of agriculture. There are some very remarkable
falls in West Canada creek, on the eastern border of this
town. This stream affords numerous feites for mills in
Trenton. The population is 1548; the senatorial electors are
127. The largest compact settlement in this township
contains from 70 to 80 buildings, and is distant 13 miles
from Utica and 107 from Albany.

Treo, a town on the E. coast of the island of Paros.
TREOGAN, a town of France, in the department of the North Coasts; 9 miles W.S.W. of Roskiren.

TREOGAT, a town of France, in the department of the Finisterre; 9 miles S.W. of Quimper.

TREPAN, in Surgery, a circular saw, by means of which the skull is perforated in the operation called trepanning. It bears a considerable resemblance to the well-known instrument named a wimble, and is worked in the same manner.

A representation of it is given in Plate VIII., fig. 6. of the surgical plates. Formerly, the saw was sometimes made of a conical shape (see fig. 5.); but this construction rendered the action of the instrument difficult; and as the fear of a cylindrical saw penetrating too suddenly, so as to injure the brain, was found by experience to be an insufficient reason for the conical shape of the saw, the cylindrical trepan at length came into general use. In this country, the trepan is now imperfectly by the instrument called a trephine, which has a different kind of handle from that of the trepan, and is not worked in the same way. (See Trephine.) On the continent, however, the trepan still has the preference. Mr. Rodman's trepan (fig. 4.) is objectionable, because with it you cannot increase and diminish the pressure on any particular point of the circular groove in the bone, as occasion requires. You must continue to saw every part of the circle. Hence, if the bone be sawn through in one place, and not in another, as generally happens before the operation is finished, the further action of Mr. Rodman's saw will inevitably do mischief to the dura mater, and is not well calculated for completing the division of the bone. See the following article.

TREPANNING, or Trephining. From what has been said in some preceding articles of this work, (see particularly Head, Injuries of, Extravasation, &c.) the operation of trepanning or trephining, or that of sawing out a portion of the skull, is, in several affections of the brain from compression or irritation, the only means of preserving life, and of all other remedies the most urgent and effectual. It should be performed in good time, and the repetition made according to the exigency of the case. In the records of surgery, innumerable facts may be consulted, where the prudent and judicious employment of the trepan has effected wonderful cures, and been the only thing by which the patients' lives could possibly have been saved. The benefit which the operation brings about, is also sometimes so sudden and alonning, that in no instance does the interpolation of the surgical art display itself to greater advantage. The immediate restoration of sight by the depression or extraction of an opaque effusion from the eye, is not more beautiful and striking, than the instantaneous communication of the intellectual faculties, and of the powers of speech, of feeling, &c. together with voluntary motion, to a victim lying in an apparently lifeless state from an injury of the head. The utility of the trepan is occasionally manifested even in this degree. In the valuable essay of Mr. Abercromby on injuries of the head, a case may be seen, in which the patient, who had been in a condition almost devoid of animation, rose up and spoke the instant the extravasated blood was removed from the surface of the brain. And among the wounded at the battle of Waterloo, there was a folder of the 44th regiment, whose case is of equal interest. He had been struck with a musket-ball on the right parietal bone, which was exposed, and had no appearance of being fractured.

As, however, the symptoms of compression were urgent, and the patient was in nearly a lifeless state, the writer of the present article conceived it right to apply the trephine to the part on which the violence had acted. He had not sown long before the external table came away in the hollow of the trephine, leaving the inner table behind, which was not only splintered, but driven at one point more than half an inch into the membranes and substance of the brain. No sooner were the fragments taken out with a pair of forceps, than the man instantly sat up in his bed, looked round, and began to speak with the utmost rationality. It is a most extraordinary fact, that this patient got up and dressed himself the same day without leave from the medical officers, and never had a bad symptom afterwards. Immediately the operation was finished, the temporal arteries were opened, and some purgative medicines exhibited.

Let not the young surgeon, however, draw from these dazzling cases of success an immoderate solicitude to perform the operation; for it should never be undertaken but in the most preluding circumstances, and when the symptoms unequivocally shew, that a dangerous degree of pressure on the brain exists. We recollect an unfortunate example, in which an hospital surgeon of this metropolis ventured to saw out a portion of the frontal bone for a mere long-continued pain in the part: the patient was attacked with inflammation of the dura mater, and perished in three or four days. We may therefore conclude, that the operation is not itself exempt from danger; and it is certain that it ought never to be resorted on without deep consideration.


The trepan or trephine is never necessary in injuries of the head, except for the purpose of relieving the brain from pressure. Such pressure may be caused by a depressed portion of the cranium, or it may be produced by an extravasation of blood, or the lodgment of matter, betwixt the skull and the dura mater. The chief danger of concussion, when the accident is not directly or soon fatal from the disorganization and mischief done to the brain, depends upon the consequent inflammation of this organ, and therefore can be little likely to be benefited by the use of the trepan. If the operation becomes proper in such a case, it is when an abscess has formed under the cranium, and when the confined matter itself creates bad symptoms by its pressure on the brain. This state of things, however, cannot come on till after the inflammation of the brain and its membranes has prevailed a certain time, and it is always accompanied with a detachment of the pericranium and a puffy tumour of the scalp; or, if there be a wound of the latter part immediately over the abscesses, the lips of the injury acquire suddenly an unfavourable appearance, and lose their vermilion colour. The patient has also had much preceding febrile disorder, pain and tension over the whole head, redness and turgence of the eyes, and generally more or less delirium. When the matter is forming, there are usually some rigors, and as soon as it is formed, the patient falls into a comatose state, and paralytic symptoms frown themselves. Here the urgency for the prompt application of the trephine is very great, and the patient's chance of living is almost essentially connected with the immediate performance of the operation. This important case has been particularly dwelt upon in the writings of Mr. Pott.

In the articles Head, Injuries of, Extravasation, &c. we have laid down the most remarkable symptoms of concussion and compression of the brain, a subject which every surgeon should study with earnest attention, before he ever presumes to employ the trepan. For sometimes these accidents are extremely difficult to be discriminated; sometimes they exist together in the same individual, a complication which is peculiarly embarrassing; and in every instance where the symptoms are those of concussion, the
TREPPANNING.

operation, so far from being indicated, would be a step of all others the most likely to do harm, by increasing the irritation and inflammation of the brain and its membranes. A fall upon the back, or upon the head, occasions a direct concussion of the brain, and the shock, not being wholly neutralized by the intervention of any yielding elastic structure, is the more dangerous. When a person has fallen from a certain height, and pitched upon his head, his back, the buttocks, the knees, or even the soles of the feet; when he has been instantly deprived of his senses, and then by degrees recovered them and come to himself again; the fact of his having suffered concussion of the brain is clear and indubitable. Concussion has likewise taken place, though in a flighter degree, when the patient has been only stunned by the fall, and experienced a benunciation of sparks. But a multitude of degrees separate this feeble concussion from that, in which the substance of the brain is instantaneously disorganized, so that the patient has not the possibility of recovery.

The symptoms of concussion of the brain are attended with coma, and the compresion of this organ by an extravasation is also accompanied with lethargic heaviness. How, then, is the surgeon to ascertain, whether the comatose disorder arises from one or the other of these affecting?

Here, in order to avoid repetitions, we beg leave to refer to the observations already made in the articles quoted above. But there is one criterion of such first-rate importance, that it may prevent innumerable fatal mistakes, and, indeed, without the continual recollection of it, no man ought to be rash enough to interfere with this dark and abrufe part of surgery. On this account we shall mention it here, notwithstanding we have already noticed it elsewhere. If the patient is knocked down and stunned directly by the blow, and remains in a state of insensibility, these primary symptoms are aafeivable to the concussion. On the contrary, when the coma and loss of sense do not take place till an hour or two after the blow, they are to be imputed to an extravasation.

The shock given to the brain by concussion, must, like every other impulsive communication, continue to diminish until it ceases altogether. If, at the very time of the blow, the shock has not been forcible enough to produce alarming symptoms, such symptoms will not afterwards come on when their cause is weakened. Hence the reason may be discerned, why concussion may be distinguished from concussion of the brain, when there has been an interval of sense between the receipt of the blow, and the occurrence of the bad symptoms. But the distinction of the symptoms into primary and consequent, cannot be made when concussion and extravasation exist together.

Having made these few remarks on concussion and concussiocon of the brain, remarks which seemed necessary before we entered into a description of the operation of the trepan, we shall next premise some observations relative to contusions and fractures of the skull, cases on which the most erroneous opinions have been entertained. It is true, that we have in another place (see Head, Injuries of,) considered the subject; but we think it better to recapitulate certain points here, because they have such immediate connection with the application of the trephine.

Contusions of the head not unfrequently occasion a small kind of tumour, which is soft in the centre, but hard and refilling at the circumference, especially when the violence has been considerable. Now the case with which the centre or feat of the extravasated fluid admits of being depressed, while the circumference remains hard and elevated, is extremely apt to give rise to the belief, that a fracture with depression has happened. The true nature of this accident was first clearly explained by the eminent M. J. L. Petit, and since his time the proper cautions, not to fall into a mistake concerning it, have been laid down by the generals of surgical writers.

Often nothing is more obscure than the diagosis of fractures of the cranium: their existence indeed can only be made out with certainty, when they can be felt or seen. Thus a fracture of the skull, attended with a wound of the scalp, and exposure of the bone, shews itself in the form of a fissure more or less wide and extensive, and taking various directions. The accident may also be known by the touch, even when the soft parts continue entire, particularly if the fracture is accompanied with splinters, or the edges of the fissure are materially separated. When there are many splinters, entirely detached, a crepitus will likewise serve to explain the nature of the accident; but, unaided by these symptoms, imparted to him by the sight, the hearing, or the touch, the practitioner cannot at once offer a decided opinion as to whether a fracture exists or not.

In order to procure more positive information, would it be right and judicious to make several incisions and uncover the bone? But here the surgeon would be embarrased in the very commencement of his proceedings; for how would he be able to judge where the knife should be applied? Why also should he refer to an useless and painful operation, which (to say the best of it) could only render the patient's cure more distant.

The symptoms indicating compression of the brain, can alone justify an examination of the fracture. These symptoms also must be urgent and alarming; for when they prevail in a flight degree, bleeding and evacuations promise more benefit than any operation on the skull, and consequently all examination of the part supposed to be broken must be unnecessary. The precept, too commonly given, to cut through the scalp for the purpose of bringing the fracture into view, will no longer be matter of suprême, when it is known that, with some surgeons, the operation of the trepan is a thing of course in all fractures of the cranium.

Even when the cranium has been denuded, so that the sight can convey the information respecting the solution of continuity in the bone, care must be taken not to be deceived by a future, or by the groove of a vessel. In cases of doubt, a modern surgical author advises us to scrape the outside of the bone; and he tells us, that if, after the removal of the external table, the fissure yet appear, and a thread of blood be seen at its outer part, no doubt exists of its being a real fissure. As, however, making this examination can answer no purpose, except with a view to determining the place where the trepan should be applied, we cannot recommend the plan, except where the symptoms are such as to render this information desirable. On the contrary, it appears to us, that all examinations of the bone, made seemingly from mere curiosity, and without any true surgical object, should be deprecated as rash and hurtful.

The danger of fractures of the skull does not depend upon the simple solution of continuity: it bears altogether a relation to the concussion and compression of the brain, with which the injury of the bone may be complicated. The fissure, which is caused by depressed splinters of bone, is less alarming, inasmuch as the cause of the compression is easy of removal. The fissure arising from extravasated fluid is far more serious, in consequence of the difficulty of ascertaining positively the existence and precise situation of such extravasation.
The seat of the extravasation is sometimes between the skull and the dura mater, which has been detached from the bone. More frequently it occurs either between the dura mater and tunica arachnoidea, in the substance of the brain, or else in the ventricles. The quantity of extravasated fluid is generally less in those extravasations which are situated between the dura mater and the skull. The extravasations, which are formed in the substance of the brain itself, are not only more considerable, but also, as they mostly depend upon concussion, are more alarming, than effusions on the surface of the dura mater. It is indeed extremely difficult, if not impossible, to ascertain the situation of the extravasated fluid. In such cases, the trepan is likewise of no use; while concussion, when so violent as to produce internal extravasation, is invariably fatal. In extravasations between the dura mater and the skull, which are almost the only cases of the kind to which surgery can administer relief, when the effused fluid lies under a part of the skull accessible to the trepan, the extravasated fluid is almost always small in quantity. The danger, however, is not the less: ten or twelve drops of fluid are sometimes enough to produce a fatal compression. When the extravasation has happened in the substance of the brain, the compression is far more perilous; in short, it may be said to prove, with very few exceptions, certainly mortal. The danger is not fo great, when the extravasation is situated between the skull and dura mater.

The lethargy, the degrees of which increase from mere drowsiness unto the most perfect coma, and the paralysis of the opposite side of the body to the seat of the extravasation, are the characteristic symptoms of this accident, in cases of injury to the head. Having explained elsewhere (see Head, Injuries of, Concussion, Extravasation, &c.) some other symptoms, such as floridous respiration, dilated pupils, &c. which usually indicate-pressure on the brain, we need not here dwell upon them. The frequent incafe of the coma and paralytic affections, and the gradual augmentation of their intensity, serve to render these symptoms distinguishable from others, which are suddenly brought on by concussion. But there are instances, as every man of experience knows, in which the concussion ruptures the blood-vessels, and produces an extravasation of blood. In this circumstance, it is obvious that the symptoms of compresion are blended with those of concussion. The symptoms, proceeding from the latter cause, always diminish in proportion to the time which has elapsed from the moment of the injury; while those of compression succeed, and, on the contrary, increase in intensity, in proportion as the quantity of extravasated fluid becomes more considerable. Notwithstanding these distinctions, however, it must be acknowledged that there are many cases in which the surgeon is obliged to remain in doubt with regard to the particular cause of the symptoms. This indecision is the more embarrassing, because the operation of the trepan is necessary in cases of extravasation, but useless in those of concussion. Even when extravasation is known to exist, the practitioner requires more information; for he ought to know the precise situation of the effused fluid. It is true, indeed, that paralysis of one side of the body indicates the pressure to be upon the opposite hemisphere of the brain. But what surgeon would venture to follow the practice advised by Van Swieten, and apply to the suspected side of the head three crowns of the trepan? Possibly not one of them might fail in the situation of the extravasated fluid. When the skull is broken, the extravasation exists on the same side as the fracture. When it is the effect of concussion, or when the breach of continuity in the skull is what is termed a counter-blow, the effusion is generally on the side of the head most remote from the blow. If the pressure is caused by a detachment of the internal table of the skull, the nature of the case cannot be ascertained, before the operation of the trepan has been performed on the part of the skull upon which the violence has acted. When there are two extravasations, one depending upon a fracture, and situated immediately under it, between the dura mater and the skull; the other arising from concussion, and situated at some point directly opposite, either between the dura mater and tunica arachnoidea, or within the substance of the brain itself; paralysis may occur on the same side as the fracture; and hence it may be inferred, that the palsy does not always take place on the side opposite to the extravasation. But an examination of the body quickly proves, that the case does not deviate from the common rule. The extravasation produced by concussion, being almost invariably more considerable than that caused by a fracture, accounts for the extension of the palsy to the same side of the body. Sometimes the side which is not paralyzed is affected with convulsions, the pulse is full and hard, and the respiration floridous; in short, the symptoms are analogous to those caused by apoplexy.

The evacuating plan, recommended for the treatment of concussion (see Concussion, and Head, Injuries of,) is all that can be done, when every thing is uncertain relative to the situation of the extravasation. It is all that can be done in those frequent instances, where the effusion has taken place in the substance of the brain, so that it cannot possibly be voided. The trepan then is indicated only when there is an extravasation between the dura mater and the bone, the fracture being situated in a part of the skull accessible to instruments, and not at the bafe. We will not here dwell upon the doubtful example, where the fluid lies between the dura mater and the arachnoidea. But are the cases, which we have just been describing, as frequent as they are supposed to be? Cannot the effused blood be generally discharged through the interstices of the broken pieces of bone? Is the trepan usually necessary for the relief of injuries of the head, as Quefnay, Pott, and the French Academy of Surgery maintained?—We think not. The operation is often useles, and sometimes dangerous. We believe that it should be limited to a small number of cases. The exact determination of the cases in which it is absolutely indispensible, is one of the greatest desiderata in modern surgery.

Richerand contends, that extravasations between the skull and the dura mater, if considerable as to produce compression of the brain, and render the trepan necessary, are much less common than many surgeons think. Even when they do occur, the dura mater is always detached to a certain extent; and, according to this writer, if the bone is much broken, the interstices of the fragments are quite sufficient for the evacuation of the effused fluid. The following case is quoted in proof of this observation. A woman injured her head, by falling from a height of fifteen feet. The fracture reached the whole breadth of the skull, so that when the os frontitis was taken hold of with one hand, and the os occipitis with the other, the two halves of the cranium admitted of being manifely moved and separated. Blood issued from the fissure, the edges of which were kept apart by a small wedge of wood, in such a manner that the pulsations of the brain were visible. On the sixth day, as nothing was discharfed from the fissure, the bit of wood was removed; and on the fifty-second, the wound had completely healed without any exfoliation. On the seventy-second, the patient was discharged from the Hôtel-Dieu, perfectly.
TREPANNING.


Thus we see that the trepan is often unnecessary in injuries of the head, with fractures of the skull, notwithstanding the co-existence of an extravasation between the bone and the dura mater. This doctrine is very different from what is taught in the memoirs of M. Quefnav, in the first volume of those of the French Academy of Surgery. Default, in the last years of his practice, abandoned the operation of the trepan altogether. It has been remarked for many years, that in the Hôtel-Dieu this operation has had very little success; a circumstance which has excited a suspicion, that the soul air of the wards of that establishment may have had a share in bringing on the unfavourable event. We shall not here expatiate on the bad effect of the atmospheric air on the membranes of the brain; a thing of which B. Bell seems to have convinced M. Richerand.

When the skull is fractured by a blow or fall, and the cafe is a simple fiffure, the trepan ought to be applied upon the solution of continuity, if the symptoms indicate a dangerous degree of pressure on the brain, and the edges of the fracture are not sufficiently separated to let the extravasated fluids escape.

When the detached portions of bone are depressed, fo as to comprefs the brain, the operation is still requisite, if they cannot be elevated by other means. But Richerand maintains, that a positive indication for trepanning is not frequent, either because it is difficult to judge of the existence and situation of extravasations, or because extravasated fluids readily escape through the interpaces of the fragments, when there is a splintered fracture. Such facility is allo increafed, when one of the portions of broken bone is totally detached, fo that it can be removed, leaving an aperture equivalent to what would be produced by the application of the trepan.

When the indications render it neceflary, there is no point of the external surface of the cranium to which the trepan, or trephine, may not be applied. The region of the frontal spine and fninnes, however, and the situation of the fphenes and inequalities of the occiput, the lower part of the squamos portion of the temporal bone, and the track of the meningeal artery running under the anterior inferior angle of the parietal bone, are places to which the instrument ought never to be applied without urgent necessity. The surgeon may trepan upon the futures, and over the sinusses of the dura mater, with perfect safety. A wound of the longitudinal fissus has not only been found to be free from danger, but actually beneficial, by the evacuation of blood that has followed. The experience of Pott, Callifen, &c. confirms this fact; and they have even purposely opened the vessell with a lanceet. Callifen, Syllf. Chir. Hodierne, tom.i. p. 659. edit. 1708.

The manner in which the two tables of the skull recede from each other at the frontal sinusses, would make the operation difficult. Defides, here the spine of the os frontis projects inward, fo that the whole of the bone could not be faown through, without the dura mater being lacerated. In an urgent cafe, however, the surgeon might trepan exactly on the frontal spine, by removing the outer table of that cavity with a large trephine, and applying a finall one to the inner table. Perhaps alo, in these prefling examples, it would be proper to trepan on the centre of the os frontis, and ufe a chifel for breaking the inner spine of that part of the bone. In the fame way, although a surgeon would al- ways prefer avoiding the meningeal artery, he ought not, in urgent cafes, to be afraid of it. The bel flmoforns, well know that the hemorrhage from that vessell is capable of being easily suppressed, by the introduction of a small plug into its orifice.

The practionier can never be too careful not to place the trepan on a loose part of the fractured bone, as it would be apt to be prefixed inward, fo as to do mischief to the brain.

When the cranium has been perforated with the trepan, and nothing is found between the skull and the membrane which underlies it, the situation where an extravasation may be suspected to exist, additional perforations should be made elsewhere, if the symptoms should indicate fuch practice. The repetition of the trepan is particularly requisite in cafes where the fiffure runs across a future. The intime adhesion of the dura mater to the future, explains why this membrane often continues undetached in that situation, while on each side it is separated from the bone, and blood effused upon it. There are then two diftinct extravasations, and two perforations of the bone are absolutely neceffary for the discharge of the blood.

Foreign surgeons invariably prefer, for the accomplish- ment of the operation, an instrument called the trepan, which much resembles a wimble, a tool extensively employed by cooper's, and, like it, confists of a handle, to which is adapted a circular faw, or, as it is termed, the crown of the trepan. The diameter of the crowns varies from fix to ten lines, and they are about one inch in height.

In England, the trepan (Plate VIII. Surgery) has gone into difufe, the trephine being generally preferred, though perhaps without great reafon. The trephine differs from the trepan in having its crown fixed upon and worked with a common transfere handle, instead of being turned with a handle like that of a wimble. On the continent it is objecuted, that the trephine which the English surgeons make use of, requires a ftronger hand and greater preffure than the trepan; fo that at the moment of finifhing the division of the bone, one runs a risk of forcing the instrument too deeply, and lacerating the brain and its membranes. We must confeft, however, that we have never seen this accident occur, and the trephine is now made in fo excellent a manner, that it will cut the bone fufficient enough without any oceafion for immoderate preffure. If some badly made trephines cut with too much difliculty, the trepan may be acucced of dividing the bone with too much celerity. A man of ordinary ilkill may ufe either instrument, and an awkward practionier will be apt to do mischief let him employ which he will. See TREPINE.

The firf object in the performance of trepanning, is to expofe the exact part of the bone on which it is intended to apply the instrument. In some cafes, the scalp is fo torn and injured, that a fufficient extent of the skull is already uncovered, and it is neceffary to employ a Scapul. But in the majority of inftances, the ufe of the knife must precede that of the faw. Incisions of a crucial form, or shaped like the letter T or V, are found to be the moft eligible, because they allow their edges to be brought together again with cafe, and they enable the surgeon to denude a larger surface of bone than could be managed with an incision of a different figure, but of equal fize. The old surgeons ignorantly made circular wounds, and without confeferation cut large portions of the scalp away before they applied the trepan. The confequence was, that the patient was fully of being permanently disfigured, and the edges of the perforation, remaining for a long while uncovered, frequently exfoliated.

The generality of furgical authors next advise us to be careful to afcape away the pericranium from the part to which the trepan, or trephine, is to be applied, fo as to let the faw act with more facility. We have never found this proceeding
proceeding necessary, and conceive that, as more of the pericranium must always be removed than what is absolutely intended, it may sometimes be the cause of exfoliations. We advise it, therefore, to be rejected, as well as the old plan of scraping the pericranium off the bone, which must be fawn in amputations. The ruginum, which is kept in most cases of trephining, instruments for the purpose of scraping off the pericranium, would be no real loss if omitted.

Now, on first beginning to work either with the trephine or trepan, the practitioner would find that it would flip about and not readily divide the bone, were it not for a particular contrivance. This is the centre-pin, which admits of being pulled down a little below the level of the teeth, and being very sharply pointed, immediately fixes itself in the mid-point of the circle of bone which is to be removed. As soon, however, as the teeth of the trephine have made a sufficient furrow, the centre-pin should be withdrawn, as it would otherwise wound the dura mater before the sawing of the bone were completed.

In making the incision through the scalp, when there is a fracture, the knife must be used with some degree of caution, lest it should depress the fragments of bone against the cerebrum, or be carried too deeply, so as to injure the dura mater. In certain instances, it will be advisable to make the requisite incision with a director and curved billory.

The trephine is worked by being rotated backward and forward; the trepan is turned round continually in one direction. In trepanning upon a simple fracture, or fissure, the crown of the instrument should be so placed as to include an equal portion of the bone on each side. But when there are portions of bone depressed and moveable, it is customary to apply the trepan upon an adjacent solid part of the cranium, which will serve after the operation as a fulcrum for the elevation or extraction of the depressed fragments. We must observe, however, that this method, if practised indiscriminately, will often lead to an unnecessary removal of bone; a circumstance which it is always desirable to avoid. Loose depressed pieces of bone should constantly be taken away with a pair of forceps, whenever it can be done; and then no trepanning will be needed. Also, when the fracture is shaped somewhat like the letter V, or when it is of an oblong form, the depressed piece of bone may frequently be entirely removed by sawing through the part which connects it with the rest of the cranium, and no circle of bone will stand in need of being fawn out. For the performance of such operation, Mr. Hey's saws (represented in the surgical plates) will be found exceedingly advantageous.

The surgeon should not press too heavily with the trephine, or trepan, when he is in the act of fowing the bone; but execute the burrs with as light a hand as possible. As soon as a sufficient groove is formed for the teeth of the crown, the centre-pin is to be taken out. The first part of the faying may be done briskly. Afterwards, the operation is to proceed slowly and cautiously. With a bit of quill, the surgeon must examine the depth of the circular groove, in order to be sure that he has not fawn through at any particular point. When one side seems to be more cut than another, the faw must not be allowed to act upon it so much; and if there be any part of the circle which is completely fawn through, the instrument must not be applied to that point any longer. While the surgeon examines the depth of the groove with a piece of quill, an affiant takes care to clean the teeth of the faw with a small brush made for the purpose, by which means the action of the instrument will not be obstructed by the particles of bone.

When these become tinged with blood, the teeth of the faw are known to have reached the diploe; but the practitioner must remember, that the diploe is not a criterion which will be met with in every instance, as for fear the instrument is fo fiere, that it does not gain a tinge of blood to the bone-dust. It is of importance to be aware of this fact; for were a surgeon to faw boldly on in all cases until he sees marks of his having arrived at the diploe, he would frequently be apt to injure the dura mater and brain. When he knows that he is sawing the internal table, he is to proceed with great slowness and circumpection, making repeated examinations of the groove with the pointed quill. When the portion of bone to be taken out appears to be connected with the rest of the skull principally on one side of the groove, the trephine is to be inclined to that side. Immediately the circle is loose enough, it is to be taken out with a pair of forceps constructed for this object, or with the elevator. (See surgical plates.) But rather than run a hazard of sawing too deeply with the trephine, we would always recommend the surgeon to prefer breaking the few light fibres of bone which impede the circle from being taken out.

When there are any inequalities round the margin of the perforation, they must be carefully removed by means of the lenticular knife. (See plates.) In doing this part of the operation, care must be taken not to let the lenticular knife make improper pressure upon the dura mater, a thing which might have the worst consequences.

The circle of bone having been fawn out, the surgeon is to keep in mind the grand object of the operation; viz.: that of relieving the brain from the pressure, which is the cause of the alarming symptoms. All depressed fragments of bone are to be raised, and, if quite detached, they ought to be entirely removed. All pieces of bone, penetrating the dura mater and substance of the brain, are to be extracted without delay. If there be blood or matter upon the surface of the dura mater, it now escapes, being expelled by the pulsatory movement of the cerebrum.

When the extravasation is under the dura mater, a puncture may be cautiously made through this membrane with the point of a bilivery, or lancet. There must be, however, a manifest elevation and tension of the dura mater, arising from the lodgment of a fluid below it, to justify the preceding practice. If blood should be found in the suspected situation, the puncture may be enlarged into a crucial incision.

According to surgical writers, if, after dividing the dura mater, the surface of the brain appears smooth and flabby, with a fluctuation, there is an abscess in its substance. They then select the method of carrying the point of the billivery to the depth of an inch, if circumstances render fo deep a puncture necessary. But, says Richerand, prudence forbids us to go further. Cutting the surface of the brain causes no pain, and it produces less danger than one could presume to expect; but experience and observation have proved, that the essential parts of this organ are situated near its base, and that its surface may be removed without danger or pain. Nosogr. Chir. T. 2. p. 301. edit. 3.

After the operation of trephining, the divided scalp is to be placed as nearly as possible in its natural situation, and lightly dressed with a simple pledge of any common unirritating ointment. In applying the dressings, the surgeon should invariably keep in view these objects; namely, to let whatever is put on the wound be as light as possible; not apt to make pressure on the brain, and of a nature which cannot excite irritation. All stimulants are to be strictly avoided; nor will any bagadage be better than an ordinary
ordinary night-cap of sufficient size to be put on with
facility. It may be secured with bits of tape, which are to
be tied under the jaw.

The aperture in the skull usually becomes closed with
soft granulations, which flowly acquire a hard confluence.
These almost continually grow from the edge of the per-
formation, and form from the surface of the dura mater.
While the cicatrix is soft, it should be protected from ex-
ternal injury with a thin piece of horn or metal. Ex-
foliations from the margin of the perforation sometimes re-
tard the healing of the wound; but now that the practice
of dressing with drying spirituous applications has been ex-
ploded, and the removal of any part of the scalp is con-
demned by all the best surgeons, these unpleasant con-
sequences are rendered much less frequent than in former days.

TREPPANNING, in Surgery. The operation of extrac-
ting the bags or cysts that contain a watery fluid from
the heads of these animals, which are the cauce of diæse. See
STUDY.

TREPASSER'S Bay, or Trepaffi Bay, in Geography,
a bay on the south coast of Newfoundland. N. lat. 46° 50'.
West. 50° 50'.

TREPÆA, a town of Servia; 5 miles N.E. of
Novibafar.

TREPHINE, in Surgery. The operation of trepanning is
now frequently called the operation of trephining, from
its being generally performed in this country with a trephine,
which is a more modern instrument than the trepan. The
trephine consists of a simplex cylindrical saw, with a handle
placed transversely, like that of a gimlet; and from the
centre of the circle, which the teeth of the saw describe,
a sharp little perforator projects, named the centre-pin.
The upper part of the centre-pin is made to screw in a
corresponding hole at the inside of the top of the saw, and is
capable of being taken out or put in at the surgeon's option,
by means of a little key for the purpose. Its use is to fix
and steady the trephine, when the instrument first begins
to work, that is, before the teeth of the saw have made a
sufficient circular groove, in which they can securely move.
But as soon as an adequate groove is formed, the centre-pin
must always be taken out; because it is now unnecessary,
and, if not removed, it would not only retard the progress
of the operation, but inevitably penetrate the dura mater
and brain, when the teeth of the saw had cut to a certain
depth through the cranium. Some trephines contain centre-
pins, which are contrived to slide up or down, and to admit
of being fixed in either situation, by turning a little screw.
This method seems to us both ingenious and convenient.

The cylindrical part of the trephine is often termed the
crown of the instrument. The surgeon should always have
at least two or three cylindrical saws of various sizes; for it
is a commendable rule never to saw away any more of the
cranium, or indeed of any other bone, than is absolutely
required for the accomplishment of some afflicting object.
There is no occasion, however, for having more than one
handle, which may be made to fit any of the saws.

The trepan is worked in the manner of a wimble, the
instrument turning round and round upon its own axis; but
the trephine only performs semicircular movements, which
the surgeon imparts to it by the prongation and supination
of his hand. As its teeth are arranged perpendicularly, they
cut whether the instrument is turned from the left to the
right, or from the right to the left.

Certainly cæles do frequently present themselves, in which
trephining is absolutely necessary; and yet there is no occa-
sion for removing a complete circular portion of the cranium;
the taking away of a piece of smaller size, and
different shape, would sometimes be much more advan-
tageous. A very good instrument for effecting this pur-
pose is a common trephine, terminating only in a semicir-
cular saw, instead of a circular one. With this the surgeon
can cut across the base of certain depressed portions of
bone, and take them away, without any occasion for re-
moving also a circle of the cranium.

The saws, however, which Mr. Hey has described, should
consequently be kept in every case of trephining instruments.
This practical writer remarks, that "the purposes for
which any portion of the cranium is removed, are, to enable
the surgeon to extract broken fragments of bone, to elevate
what is depressed, and to afford a proper suffusion to blood
or matter that is, or may be confined, &c.

"When a broken fragment of bone is driven beneath the
found part of the cranium, it frequently happens that the
extraction cannot be executed without removing some of the
unbroken part under which the fragment is depressed. This
might generally be effected with very little loss of found bone, if
a narrow portion of that which lies over the broken fragment could be withdrawn.
But such a fragment cannot be removed by the trephine. This instru-
ment can only cut out a circular piece. And as, in executing
this, the central pin of the saw must be placed upon the
uninjured bone, it is evident that a portion of the found bone,
greater than half the area of the trephine, must be removed at every operation.
When the broken and de-
pressed fragment is large, a repeated application of the
saw is often necessary, and a great derruction of found
bone must be the consequent.

"When the injury consists merely of a fissure with de-
pression, a small enlargement of the fissure would enable
the surgeon to introduce the point of the elevator, so as to raise
the depressed bone. But a small enlargement of the fissure
cannot be made with the trephine. When it is necessary to
apply the elevator to different parts of the depressed bone,
a great deal of the found cranium must be removed, where
a very narrow aperture would have been sufficient.

"The same reasoning will apply to the case of openings
made for the purpose of giving a discharge to extravasated
blood or matter.

"If a saw could be contrived, which might be worked
with safety in a straight, or gently curvilinear direction, it
would be a great acquisition to the practical surgeon.
Such a saw I can now with confidence recommend, after a
trial of twenty years, during which time I have rarely used the
trephine in fractures of the skull. Its use has been
adopted by my colleagues at the General Infirmary in Leeds;
and will be adopted, I hope, by every surgeon who has
once made trial of it." Mr. Hey next informs us, that the
instrument was first shewn to him by Dr. Cockell of Pott's
fracture; but that there is a saw, formed on the same principle,
in Seelenius's Armamentarium Chirurgicum. The saw
alluded to are very short ones, fixed at the end of a length
straight handle; their edges are made either straight, or
semicircular. The latter construction qualifies the instru-
ment for cutting in a curvilinear direction, which is often
proper. The edge of the saw should always be made a
little thicker than the rest of the blade, by which means it
will work in the groove, which is cut, with more facility.
Saws made on the principle just described, are also of
infinite use in cutting away depressed portions of other bones,
besides the skull, cartilages, &c. In cases of necrosis, when
a dead part of a bone is quite wedged in the substance of the
surrounding new bony matter, Mr. Hey's saws may
often be advantageously employed for cutting away the
depth which mechanically prevent the detachment of the
dead.
TRE

TREPICHNIEN, in Geography, a town of Italy, in the department of the Aude; 3 miles from Pont-sur-Seine. — Also, a town of France, in the department of the Sarthe; 7 miles W. of St. Calais.

TRESPASS, in Law, signifies any transgression of the law, under treason, felony, or mifprision of either.

TRESPASS, however, is most commonly used either for that wrong or damage which is done to the king in his forest, or by one private man to another.

In this sense, it is of two sorts: trespass general, otherwise called trespass on the high road, or upon the road, or any other road or thoroughfare; and trespass special, otherwise called trespass upon the house; which should be that done without force, or where the injury is only consequential.

But the two species are sometimes confounded.

TRESPS on lands denotes an outcry on another man's ground without lawful authority, and doing some damage, however inconsiderable, to his real property. Every such unwarrantable entry on another's soil, the law entitles a trespasser by breaking his peace. But in order to be able to maintain an action of trespass, a man must have property in the soil, and actual possession by entry; or at least it is requisite that the party have a lease and possession of the vesture and herbage of the land. But before entry and actual possession, one cannot maintain an action of trespass, though he hath the freehold in law. However, by 4 Geo. II. c. 28, and 11 Geo. II. c. 19, in case after the determination of any term of life, lives, or years, any person shall willfully hold over the same, the lessor is entitled to recover by action of debt, either a rent of double the annual value of the premises, in case he himself hath demanded and given notice in writing to deliver the possession; or else double the usual rent, in case the notice of quitting proceeds from any tenant having power to determine his lease, and he afterwards neglects to carry it into due execution.

A man is answerable not only for his own trespass, but that of his cattle also. See Damage vol. 3.

In some cases trespass is justifiable; or, rather, entry on another's land and house shall not in those cases be accounted trespass; as if a man comes there to demand or pay money, there payable; or to execute, in a legal manner, the process of the law. A man may also justify entering into an inn or public-house, without the leave of the owner: a landlord may justify entering to dispossess for rent: a commoner to attend his cattle, commoning on another's land; and a reverend father to see if any waste be committed on the estate. It hath also been said, that by the common law and customs of England, the poor are allowed to enter and glean upon another's ground after the harvest, without being guilty of trespass; which humane provison seems borrowed from the Moscaic law, Lev. chap. xiv. ver. 9. chap. xxii. ver. 22. Deut. chap. xxiv. ver. 19. In like manner, the common law warrants the hunting of venison beasts of prey, as badgers and foxes, in another man's land. But in cases where a man makes an ill use of the authority with which the law confers him, he shall be accounted a trespasser ab initio; as if one comes into a tavern and will not go out in reasonable
TRESSON, a town of France, in the department of the Sarthe; 13 miles S.E. of Le Mans.

TRESSURE, in Heraldry, a diminutive of an orle, usualliy supposed to be half the breadth of it.

It is usualliy borne florly and counter-florly; sometimes double, and sometimes triple.

TRESTIANA, in Geography, a town of European Turkey, in Moldavia; 24 miles S.E. of Jaffy.

TRESTLE, Tressel, or Trussel, is explained by Minshieu, to be a three-footed floor; or, more particularly, a wooden frame or stand to bear up tables, scaffolds, or the like.

TRESPASS, a cause for ejectment, and is either by voluntary entry of the trespassor, or, in case of his refusal, by force and violence. It is thus defined by Sir N. Bacon, 1 Inst. 164:—

"A trespass is an action to recover land, and is either by voluntary entry, or by force and violence. It is the action of the owner of the land against the useEffect trespassor, by whom he is deprived of the use and enjoyment of his estate, or of the occupier of the land for his benefit and use. It is an action in which the plaintiff avails himself of the assistance of the law, by procuring a jury to give the value of the land and the damages sustained by the plaintiff, and to agree the time when the defendant shall quit the land, and to order the defendant to pay the damages so agreed upon, and to quit the land, and to deliver up to the plaintiff the possession of the land."

TRESPASS, in Law, is the wrongful entry into another's land or premises, with the intention of taking possession or obtaining exclusive occupation thereof. It is a civil wrong, and is actionable in the hands of the plaintiff and the plaintiff's assignee, and the defendant, if he is not the assignee, is liable for the damages sustained by the plaintiff, and the land is to be restored to the plaintiff.

TRESPASS, 1. As to the defendant's own land.

2. As to the land of another.

TRESPASS, 1. As to the defendant's own land.

a. Trespass to landlord.

b. Trespass to a tenant.

c. Trespass to a mortgagee.

TRESPASS, 2. As to the land of another.

a. Trespass to a neighbour.

b. Trespass to a landlord.

TRESUND, in Geography, a small island in the gulf of Bothnia. N. lat. 69° 13'.

TRET, or Trett, in Commerce, an allowance made for the waft, or the dust, that may be mixed with any commodity, which is always four pounds in every 104 pounds weight. See Tare.

This allowance, which is said to be for dust or sand, for the waft or wear of the commodity, was formerly made on all foreign articles sold by the pound avoidingos but it is now nearly discontinued by merchants, or allowed in the price. It is wholly abolished at the East India warehouses in London; and neither trett nor draft is allowed at the Custom-house. The weight which trett is allowed is called the "fittle weight."

TRETA, in Ancient Geography, a town of the island of Cyprus, in the S.W. part of the island, very near Paphos, to the S. Strabo places it between Boofara and the promontory from which those who were precipitated who had touched the altar of Apollo.

TRETE, an island of the Red Sea, upon the coast of Arabia. Ptolemy.

TRETS, in Geography, a town of France, in the department of the Mouths of the Rhone; 12 miles E.S.E. of Aix.

TRETUM, in Ancient Geography, a small town of the Argolid, nearly N. of Argos. In the mountains near this town was a cavern, which was the abode of a very fierce lion, which is said to have been slain by Hercules, and which formed among the poets one of his labours. It was called the lion of the forest of Nemata, situated near the town, to the W. of it.

TREUTUM, or Tritum, a promontory of Africa propria, on the coast of the gulf of Numidia.

TRETUR, in Geography, a small village of South Wales, in the county of Brecknock; 3 miles N.W. of Crickhowel.

TREVA, in Ancient Geography, a town in the northern part of Germany. Ptolemy.—Alfo, a town of Italy, in Flaminia, watered by the river Clytumnus.

TREVANNION'S ISLAND, in Geography, an island in the South Pacific ocean, and one of the cluster called Queen Charlotte's islands, discovered by captain Carteret in 1767, near the coast of Egmont island, or New Guernsey, in a bay called Trevannion's Lagoon. S. lat. 10° 43'. E. long. 161° 47'.

TREUCHTLINGEN, a town of Germany, in the margrave of Anspach, on the Altmühl; 28 miles S.S.E. of Anspach.

TREUEN, or DREVEN, a town of Saxony, in the Vogtland; 9 miles E.N.E. of Plauen.

TREWENBRIETZEN, a town of the Middle Mark of Brandenburg. This town was surrounded with walls in the year 1296. It was at first simply called Brietzen, but for its fidelity to the margrave Louis the Roman, was honoured...
noured with the epithet of Treves, or faithful. In the year 1641, this town was laid waste by the Swedes; 20 miles S. of Brandenburg. N. lat. 52° 8'. E. long. 12° 47'.

TREVENEN'S ISLAND, or Reetouen, a small island in the Pacific ocean, discovered by lieutenant Hergeth, in the Dredalus fleet-chip, in 1792. S. lat. 9° 4'. E. long. 220° 21'.

TREVIRI, or Trevis, in Ancient Geography, a people who occupied an extensive territory of Germany, from the Meuse to the Rhine. Of Treveri Caesar says, 'hace civitas Rheum magis tangit'; and the bridge constructed over the Rhine secures the bank on which this city was situated. The present Treves answers to the ancient position of Treveri. See TREVES.

TREVES, in Geography, lately an archiepiscopal and electorate of Germany, bounded on the N. by the electorate of Cologne; on the E. by the estates of the elector palatine, and of the house of Nassau; on the S. by France; and on the W. by the duchy of Luxembourg: about eighty miles in length, but of very uncertain breadth. The country is in general mountainous and woody, containing, indeed, good pasturage for cattle, and in many places also fruitful arable land, but yet it stands in need of the importation of corn. On the contrary, the growth of wine on the Mosel is very considerable, with plenty of game. There are likewise mineral springs, and mines of coal, salamby, iron, copper, lead, tin, silver, and gold. The electoral subjects are Roman Catholics, but in some other places where the elector of Treves is possessed of in common with other houses, there are like-wise Protestants. The ancient Tervi, from whom the principal town here, and the country also, had its name, were, till the fourth century, subject to the Romans, and afterwards to the Franks. In the divisions which the fons and potesty of the emperor Louis I. had made, this country was added, in the year 855, to the kingdom of Lorraine, and in 870, fell to the share of Louis, the German king, ever since which time it has continued annexed to Germany. The church of Treves, however, is held to be the most ancient in Germany. An archbishop of Treves was elected by the chapter there, and swore to a capitulation propounded by them. The pope confirmed such election in the usual manner, empowering one of the new elected bishops, allotted for that purpose, to consecrate him. The archbishop of Treves was in rank the second spiritual elector. At the election of an emperor, he delivered the formula of the election-oth to the elector of Mentz, to be sworn to by him; and he had also the first voice. As elector, the archbishop of Treves enjoyed both feast and voice in the electoral council at the diets of the empire. The suffragans of the archbishop of Treves were the bishops of Metz, Toul, and Verdun. The chapter of Treves consisted of forty canons, among whom were fifteen capitulars, and twenty-four domicilii. The archbishop had regular troops, and a land militia. The former of these consisted, in times of peace and ordinarily, only of the circle troops, which the elector of Treves was bound to maintain, and which amounted to between 1000 and 1200 men. The elector also kept up a life-guard of forty person. By the treaty of Luxemburg, the archbishopric and the electorate are no more: and that part of the territories which lay on the left bank of the Rhine is annexed to France, composing chiefly the department of the Sarre. The principal part of the electorate lying on the right side of the Rhine was, in 1802, given as an indemnity to the prince of Nagau-Weilburg.

Treves, or Trier, a city of France, and capital of the department of the Sarre: late capital of an electoral principality, and archiepiscopal of the circle of the Lower Rhine, lying between two mountains on the Moselle, over which it has a stone bridge. This town is very old. Long before the birth of Chrift, Treves was a town of note of the Treviri. Afterwards the ancient Roman emperors had a refidence here; and it is also the head town of the first Bel-gium, and so early as the days of Constantine the Great, was the capital of all Gaul. About the year 458, from the Romans it fell under the power of the Franks. Under the Austrasian monarchs, a royal court had its seat here; in which, as well under the Frankish kings as for a long time after, refeved palaces. The archiepiscopal court, or palace near the cathedral church, was built by the elector Francis George. The cathedral church of St. Peter here stands on a hill, being a large building. Exclusive of this church, there are likewise here three collegiate and five parochial churches, together with three colleges, and thirteen monasteries and nunneries, as also a hofe of the Teutonic order, and a manion belonging to that of St. John. For the establishment of the university here, papal privileges were bestowed early as the year 1434, but these were bought only to bear only in 1472, in 1535 renewed, and in 1722 improved. This town, according to the common opinion, was formerly imperial, and had a particular matrical evaluation of its own: but by a frantice of the electors pitched upon for the decision of this matter, in conjunction with the imperial aulic counselors, nominated by the emperor, it was declared to be subject to the superiority of the elector of Treves, which was also immediately after effectually exercised by him over it. In the beginning of August 1794, the French republicans entered the city, which had been halfly evacuated by the German troops. The magistrates met them in their robes at the gates with the keys, congratulated them on their successes, and declared they were glad to receive them. The good conduct of this army deserves commendation; and an English writer, speaking of it, observes, "they had no sooner entered Treves than they established a municipality; they broke in upon no property whatever, and left the different corporations, and all civil and religious institutions, as they found them;" 68 miles S.S.W. of Cologne. N. lat. 49° 48'. E. long. 6° 48'.—Allo, a town of France, in the department of the Gard; 12 miles E. of Le Vigan.

TREVISO, a town of Italy, in the duchy of Spoleto, anciently called Matusev and afterwards Trebula; 6 miles N. of Spoleto.—Allo, a town of the Popedom, in the Campagna di Roma; anciently the fee of a bishop, erected about the year 1000, but in the year 1260 united to Anagni; 32 miles E. of Rome.

TREVICO, a town of Naples, in Principato Ultra; the fee of a bishop, suffragan of Benevento; 14 miles N. of Conza. N. lat. 41° 6'. E. long. 15° 14'.

TREVIERES, a town of France, in the department of the Calvados; 12 miles E. of Caretan.

TREVIGIO, or Trevixo, a city of Italy, capital of the Trevisan, situated at the confluence of the Sile and the Pia-vefella; the fee of a bishop, suffragan of Udine. An university was founded here, and afterwards removed to Padua. The town is three miles in circumference, and contains 2500 houses and 22,000 inhabitants; whom the culture of filk, the filk and woollen manufactures, and particularly the annual fair in the month of October, supply with abundant means of subsistence. Befides the cathedral, the town contains 16 pa-rocchial churches, 11 monasteries, 10 nunneries, 4 hospitals, and a pawn-bank. The streets and public squares are in general
TREW, CHRISTOPHER JAMES, in Biography, a physician and naturalist, was born at Lauffen, in Franconia, in 1695, and settled at Nuremberg, where he gained medical and literary reputation, so as to be made director of the academy "Natura Curioforum." He also contributed much towards establishing a society under the title of "Commerium Literarum Noricum ad Rei Medice et Scientiae Naturalis Incrementum institutum," which published its memoirs. To these societies he communicated several papers, and he also published several splendid works in anatomy and botany. Among others, we may enumerate the following: "De Differentiis quibusdam inter Hominem naturam et saeculum intercedentibus," 1736, 4to; "Epitola ad Alb. Hallerum de Vasia Linguze Salivalibus et Funguis," 1734, 4to; "Tabulae Oecologicae Corporis Humani," fol. max. with coloured plates, 1767. In 1750 he commenced his publication of one of the most splendid of the imitations of Flora, under the title of "Planta feclete, quaram Imagines pinxit G. Dionyfius Ehret." To the incompressable defigns of Ehret, Trew added descriptions and remarks; and the work appeared in decades, seven of which were completed. In the same year he began a similar publication of garden flowers, intitled "Amenciifinae Florum Imagines," which was carried on to fix decades. He also published an improved edition of Blackwell's Herbal, in English and German, with an addition of some plants. In possession of Gelfner's wooden plates, he gave an impression of 216 figures of plants from them, intitled "Icones solignum Gelfnerianae," 1748. Trew died in 1769. Haller, Eloy.

TREWARDRETH BAY, in Geography, a bay in the English Channel, on the south coast of Cornwall, 3 miles W. of Fowey. N. lat. 50° 18'. W. long. 4° 42'.

TREWIA, in Botany, was so named by Linnaeus, at the end of his Genera Plantarum, in honour of Christopher James Trew, an opulent physician at Nuremberg, who has distinguished himself as the editor of some of Ehret's figures, in the most splendid style, with learned descriptions and explanations of his own, under the title of Plantae Scholle. Of a similar character are his Flora Imagines, in six decades. His improved edition of Mrs. Blackwell's Herbal, in German, with valuable additions, has proved acceptable to his countrymen; as have his numerous botanical and physiological essays, published chiefly in the Commerium Literarum at Nuremberg, between the years 1730 and 1746, to the advantage of the scientific world. He is charged by Ludwig, in a letter to Haller, with undertaking more than he could accomplish; nor does he stand in the highest rank of correct and philosophical botanists. He died in 1769, aged 74. (See Trew.)—Linn. Gen. 580. Schreb. 534. Willd. Sp. Pl. v. 4. 834. Mart. Mill. Diet. v. 4. Ait. Hort. Kew. v. 5. 426. Jull. 442. Lamarck Illusr. t. 466. (Tetragastris; Garin. t. 109. Rottler; Willd. in the Goettingen Journal of Nat. Hist. v. 1. 8. Mullotus; Loureir. Cochin. v. 2. 653.)—Clafa and order, Dioccia Polyandria. Nat. Ord. Tricocce, Linn. Euphorbias, Jull.

Gen. Ch. Male, Cal. Periandri of three ovate, reflexed, coloured, equal leaves. Cor. none. Stam. Filaments numerous, capillary, about the length of the calyx, inserted into the receptacle; anthers roundish, of two distinct lobes.

Female, Cal. Periandri inferior, of one leaf in three or four segments. Cor. none. Pyi. Germin superior, roundish, style short; stigma three, very long, feathery on the upper side. Peric. Capsule turbinata, somewhat globular, of three or four lobes and as many cells, with twice as many valves. Seeds solitary, pendulous, angular on one side, convex on the other.


Obi. We believe the several genera cited above, are here very properly united; see MALLOTUS and TETRAGASTRIS. The natural number in every part of the female fructification is probably three, though varying to four in the original species. Linnaeus was but ill acquainted with this genus, nor does it appear that he ever examined a specimen.

1. T. mufflora. Smooth-leaved Trevia. Linna, Sp. Pl. 1661. Willd. n. 1. — Att. n. 1. (Rotella indica; Willd. as above t. 5. Canfchi; Rhede Hort. Malab. t. 76. t. 42.).—Leaves ovate, undivided, entire, smooth on both sides. Native of the East Indies, in sandy ground. It has been introduced into the flowers at Kew, but has never yet flowered. This is a tall tree, whose trunk is two or three feet in diameter; its branches numerous, round, smooth, with a filamentous bark. Leaves alternate, on long smooth stalks, broadly ovate, taper-pointed, three or four inches long, with three principal nerves, and many smaller ones, connected by fine transverse parallel veins, and numerous minute reticulations. Male flowers numerous, in axillary aggregate clusters, three or four inches long, greenish-white; sometimes, according to Rheed, four-cleft. Calyx externally downy, about two lines long. Female flowers on a separate tree, likewise axillary, but rarely more than two together, on a long stalk. Their calyx is either very small, or soon deciduous. Germen not so large as a pepper-corn, hoary. Style about as long as the germen, thick, hoary. Stigmas three or four, spreading, an inch long, densely covered along their upper side with feathery glands. Capsule rather depressed, slightly lobed, smoothish, of three or four cells.

2. T. trianae. Three-pointed Trevia. Willd. n. 2. (Malottus cochinchinensis; Loureir. Cochinch. 635.). —Leaves ovate, downy and toothed; generally three-pointed. For the history of this species we refer the reader to MALLOTUS.

3. T. pubescens. Downy Trevia. —Leaves ovate, undivided, entire, downy on both sides. Female flowers somewhat capitate, with ovate pointed bracteae. —A female specimine of this was sent us by the late Dr. Roxburgh, as an unknown tree from Amboyna. The shape and reticulations of the leaves, with the general habit of the plant, are so like the frill species, that we feel confident of their being of the same genus. The branches and footstalks, however, and the under side of the leaves, are densely clothed with soft velvet-like pubescence; the upper side of the latter is less downy. Near the base of each footstalk is a pair of awl-shaped, very downy, deciduous stipules. Female flowers on simple, axillary, solitary, downy stalks, rather longer than the footstalks, composing small roundish heads, accompanied by four or five somewhat alternate, ovate, pointed, slightly toothed, downy bracteae, an inch long. Each flower appears to have a short partial stalk, which is very hairy, and the germen is no less bristly; insomuch that we can but imperfectly develope the structure of the flower. The stigmas however are large and conspicuous, exactly those of a Trevia; but there is some appearance of their being solitary. Possibly some may have fallen off. We are unacquainted with the male of this species.

4. T. diflor. White-leaved Trevia. —Leaves ovate, entire; densely downy and white beneath. —Communicated by Lamark to the younger Linnaeus, along with several other plants from the East Indies, but without any name, or indication of its native country. We premise it to be the male of a nondefert species of Trevia. The form and veins of the leaves strongly indicate this; but their under side differs from that of the rest, in being covered with the finest deprefed, mealy or fleshy, snow-white pubescence; while the upper is very smooth to the touch, appearing minutely granulated under a magnifier only. The branches and all the footstalks are finely hoary, and, in the dried specimen at least, have a rufy hue. Panicle terminal, composed of numerous, alternate, racemose, many-flowered branches. Unexpanded male flowers about the size of a mulberry feed, downy, on short partial footstalks. —It is evident we can have no certainty at present of the genus of this plant, but there is the greatest probability of its being rightly placed here.

TREYA, in Geography, a town of Denmark, in the duchy of Sleswick; 9 miles W. of Sleswick.

TREYSA, a town of Weftphalia, in the principality of Heffe. In the year 1646, this town was burned down by the Imperialists; 26 miles S. of Cassel. N. lat. 50° 54'. E. long. 9° 16'.

TRIA Prima, among Chemifs, the three hypotaphial principles, viz. sall, sulphur, and mercury; of which they hold all bodies to be primarily made, and into which they are all held resolvable by fire.

TRIAD, TRIAS, τριάς. See TERNARY, TRIAS, and TRINITY.

TRIADICA, in Botany, from τριάς, τριάς, ternary, alluding to the prevalence of the number three in the fructification; which however is not very remarkable. —Loureir. Cochinch. 610.—Clafs and order, Diocca Diandria. Nat. Ord. Amentacee, Linn. Juss.


1. T. cochinchinensis. Cay Soi ti, or Cay Cha dam, of the Cochinchine. —Leaves ovate, obtuse. —Found in the woods of Cochinchina. A large tree, with spreading branches. Leaves alternate, ovate, entire, smooth, on long red footstalks. Flowers nearly terminal. Berries small, of a brownish green.

2. T. sennfr. U Khu mō of the Chinee. —Leaves roundish, pointed. —Wild about Canton in China. A large tree, with spreading branches. Leaves alternate, flaked, smooth, entire. Calyx, of the male as well as female flowers, four-cleft. Seeds tunicated. Of this last circumstance nothing is said in the generic character. —We are not acquainted with any plants answering to the above description. ANTIDESMA perhaps (see that article and STILAGOS) comes the nearest, especially when we contemplate the Stilago danandra of Roxburgh. If allowance be made for some occasional abortion in the cells of the fruit, or if we ourselves have misconceived Loureir's ambiguous description, "baccas trilobularis, monopera," TRIADICA may be no other than Antidesma.


Gen. Ch. Cal. a glume of two unequal, lanceolate, keeled,
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keeled, pointed, membranous valves, containing one floret; the outer valve full half the size of the inner, with a rough dorsoval awn, about its own length, united to it half way up. Cor. of two unequal, lanceolate, keeled, pointed, membranous valves; the outermost largest, three-ribbed, awnless, innermost narrower, with two keels, and a rough dorsoval awn, twice its own length, of three equal points, and a common stalk the length of the glume, slightly confluent therewith at the base only. Stem. Flattens three, capillary, shorter than the glumes; anthers hanging out of the flower, linear, notched at each end. Fruit. German superior, ovate; styles two, thread-shaped, short; stigma oblong, feathery. Peric. none, except the unconnected corolla. Seed one.

Eff. Ch. Calyx simple-flowered, of two valves, with a dorsoval awn. Corolla of two valves, unconnected with the seed, and a dorsoval awn of three points.

1. T. racemosa. Clufter-flowered Trident-grafs. Kunth as above, 179. t. 61.—Gathered by Humboldt and Bonpland, in dry cultivated ground in Mexico, between Guanaxuato and Villalpando, flowering in September. This is an annual, upright, branching gras, about eighteen inches high, with a round, smooth, slender, jointed stem. Leaves linear, narrow, sheathing, flat, striated, rough on both sides, and somewhat hairy on the inner; their sheaths striated, smooth. Stipula very short, fringed. Clusters terminal, solitary, simple, erect, from one and a half to four inches long. Flowers alternate, two-ranked, on short, slender stalks.—We have prefixed to alter the original description, chiefly with respect to the three-pointed awn, which Mr. Kunth considers an abortive floret. The analogy of Triathhra (see that article) will surely authorize this alteration.

TRIAL, in Law, the examination of any cause, civil or criminal, according to the laws of the realm, before a proper judge.

Of this there are divers kinds: both in civil and in criminal cases. In civil cases there are seven species of trial; viz. by record: by inspection or examination, when, for the greater expedition of a cause, in some point or issue being either the principal question, or arising collaterally out of it, but being evidently the object of a judge, the judges of the court, upon the testimony of their own senses, shall decide the point in dispute; as in case of a suit to reverse a fine for non-age of the cognizor, or to set aside a statute or re
cognition entered into by an infant, the king's justices de
termine, by view of the age of the party; also if a defendant pleads in abatement of the suit that the plaintiff is dead, and a peron, calling himself the plaintiff, appears, the judges shall determine by inspection whether he be the plaintiff or not; likewise in the case of an idiot; in the appeal of mayhem; and in determining circumstances relative to a day past by inspection of an almanac: by certificate, as for matters without the realm, and also within the realm: the customs of the city of London are tried by the certificate of the mayor and aldermen, certified by the mouth of their recorder: marriage, baillardy, excommunication and orders, and other such matters, are tried by the bishop's certificate: ability of a clerk presented, admission, instituting and deprivation of a clerk, shall be tried by certificate from the ordinary or metropolitan; and the customs of courts by certificate from the proper officers, &c.: by witnesses: by wager of battle: by wager of law: and by jury. In criminal matters, there was formerly the trial by ordeal and by curfewed: these two methods of trial were chiefly in use among our Saxon ancestors, and are now antiquated; the next, which still remains in force, though very rarely in use,

was introduced among us by the princes of the Norman line, and is the trial by battle, duel, or single combat: the fourth method of trial used in criminal cases is that by the peers of Great Britain, in the court of parliament, or the court of the lord high steward, when a peer is capitaly in
dicted: but that which most commonly occurs is the trial by jury, or the country, secured to every Englishman, as the great buttwork of his liberties, by the Great Charter. Blacklt. Comm. vol. iii. &c. vol. iv. &c.

Before trial, in a criminal case, it is usual to ask the criminal how he will be tried? which was anciently a very per
tinent question, though not so now; in regard there were formerly several ways of trial; viz. by battle, eredal, and jury.

When the criminal answered, By God and his country, it shewed he made choice to be tried by a jury. But there is now no other way of trial. This is also called trying per
pains, or per patriam.

TRIAL, New, is a re-hearing of the cause before another jury, with as little prejudice to either party, as if it had never been heard before. The cause of granting a new trial are such as these: want of notice of trial; or any flagrant misbehaviour of the party prevailing towards the jury, which may have influenced their verdict; or any gross misbehaviour of the jury among themselves: also if it appears by the judge's report, certified to the court, that the jury have brought in a verdict without or contrary to evidence, so that he is reasonably dissatisfied therewith; or if they have given exorbitant damages; and if the judge himself has misdirected the jury, so that they found an unjustifiable verdict: for these, and other reasons of the like kind, it is the practice of the court to award a new, or second trial. But if two juries agree in the fame or a similar verdict, a third trial is seldom awarded; for the law will not readily suppose, that the verdict of any one subsequent jury can counterbalance the oaths of two preceding ones. There are instances of new trials in the year-books of the reign of Edward III., Henry IV., and Henry VII., &c. Blacklt. Comm. vol. iii. &c.

TRIAL, Jean Claude, in Biography, director of the royal academy of music at Paris, and master of the prince of Conti's band, was born in 1734, in the Contat, that country so agreeable and fertile in excellent artists. The fine arts are generally inhabitants of beautiful nature.

At twelve years old, Trial quitted Avignon, in order to acquire knowledge from different masters whom he intended to visit. His talents were so extraordinary for his age, that at fifteen he was appointed director of the concert and opera of Montpellier. The passion which he had for the arts drove him to Paris, where he no sooner arrived, than he was placed at the head of the orchestra at what was then called the Italian theatre, or comic opera. From this orchestra he passed to that of the prince of Conti, of which he was appointed director; and his conduct and manners were such in that office, that on his death the prince deigned to say that he had lost a friend.

The protection with which he was honoured, procured him the important place of director of the Academie Royale. Permit us here to define the office of director of the academy of music, or serious opera. The management of the opera is a painful and embarrassing administration. It is necessary for the director of this complicated machine to attend to all the springs, to dissipate all impediments to their action, flatter the taille and sometimes the caprice of the inconstant public, unite to a point of concord very rarely attainable, a crowd of various and often rival talents, excite emulation without awakening jealousy, distribute rewards with justice.
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He married, in 1769, Mademoifelle Vicillnefa or warning.
toire, well known for her wit and talents, with whom he lived
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good brother, and good friend.
His funeral manifefted how much he was beloved ; every
one who attended it was in tears no funeral oration is equal
to fuch tears ; for they are never fhed but for obje&s worthy
of them.
Flattery lies, but never weeps.
Trial Point, in Geography, a cape on the fouth-eait coaft
of the ifland of Jura.
N. lat. 55 54'. W. long. 5 52'.
a town of the principality of Georgia, in
the province of Carduel
40 miles S.W. of Gori.
in Hindoo Mythology, a name of the Hindoo god Siva, who correfponds in many points with the primary deities of the Pantheon of Greece and Rome. The
name of Triambo feems to connect him with Dionyfius or
Bacchus for after the conquell of India, we are told by
Diodorus that the Greek deity allumed the title of ThriamOne of the names of Siva is Baghefa ; refembling
bus.
that of the conqueror of India fufficiently nearly for etymological hypothefis to found an argument on, efpecially
when points of chara&er and attributes alfo correfpond.
(Of thefe fee under our articles Kartikya and Siva.)
The fignification of the title Triambo is not evident. Siva
has feveral names allufive to his triple attributes and energies.
Trilokan and Trinetra, for inftance, mean with three
eyes ; Trifuli, with the trident ; Trikala, or omniprefent ;

under three

If

D

TRIANA,

in

and

If the three lines of the triangle be

all

curves, the triangle

be curvilinear.
If fome of the fides be right, and others curve, the triangle is faid to be mixtihnear.
If the fides be all arcs of great circles of the fphere, the
triangle is faid to be fpherical.
Triangles, Similar. See Similar.
Triangle, Charatlerijlic, of a curve. See Curve.
Triangle, Bafe, Canon, Hypothenufe, Legs, and Rejifl*
See the feveral articles.
ance of a.
B and
Triangles, ConJlruclion of. 1 Two fides, as
(Plate XV. Geometry, Jig. 9.) being given in numbers, or otherwife, together with the quantity of the angle
to conftru£t a triangle.
;
intercepted between them,
Afliime
B as a bafe ; and in make the given angle on
is

faid to

A

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AC

in

1.

Scirpus,

and their

allies.

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A

C ; laftly,' draw
the other leg fet off the other given line
B C be the triangle required.
B C then well
Hence, two fides with the intercepted angle being deterWherefore, if in
mined, the whole triangle is determined.
and a b : a c ::
two triangles
C B and a c b ; a
;
B
C, the triangles are determined in the fame man-

A

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Monogynia,

Digynia
fee GRAMINA.
Some of thefe,
confifts of the true graffes
indeed many of them occafionally, have abortive or male
flower3 interfperfed with the perfeft ones, and are for that
reafon placed by Linnaeus in his clafs Polygamia.
This
meafure, as we have often had occafion to obferve, is attended with much inconvenience in various cafes, though in
none more than the prefent.
3. Trigynia, a fmall order, is
up, for the moft part, of very limited genera of the

A

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ner,

=A

A

A

and are therefore fimilar

;

confequently

i=B,fli:«(::AB:BC,&c.
2.

Three

fides,

A

B,

B

C

C, and

A

c

(Plate

=

C, and

XV.

A

Geo-

A

B,
metry, jig. 5.) being given, any two of which, as
C,
to conftruft
taken together, are greater than the third

2.

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K

oxygonous.

opening with the dicotyledonous and ambiguous genus Valeriana, fome of whofe fpecies have but one ftamen, though
moft have three.
The fword-leaved plants (fee Ensat.ze)
follow; and then the Calamaria, or grafs-like genera of
Qyperus,

be fcalenens.
one of the angles, as
[Jig- 7.) of a triangle
L be a right angle, the triangle is faid to be reS-

A

Pentandria.

Schoenus,

the fides of the triangle be unequal to each other,
Plate XV. Geometry, fg. 6.) the triangle is

all

N

T RIMURTI.

orders of this third clafs are three.

C,

If one of the angles, as
{Jig. 8. ) be obtufe, the triangle is faid to be oblufangular, or amblygonous.
C B, Plate XV. GeoIf all the angles be acute, (as in
metry, Jig. 5.) the triangle is faid to be acutangular, or

double quantity, fix, prevailing as much in that tribe, as
number five does in the dicotyledonous families. See

The

B

angular.

Botany, the third clafs in the fexual,
or artificial, fyftem of Linnaeus, derives its name from
having three unconnected ftamens, in the fame flower with
the piilil,\>r piftils.
This clafs is chiefly compofed of what
are termed monocotyledonous plants, the number three, or
its

A

Geometry, Jig. 5.) it is faid to be equilateral.
If only two of the fides of the triangle be equal (as in
E F, Plate VIII. Jig. 105.) it is called an ifofceles or

KM

city of Seville.

the

it

XV.

If

Geography, one of the fauxbourgs of the

TRIANDRIA,

right,

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a plane or reS'dinear triangle.

faid to

times, the paft, the prefent, and the

articles,

comprehended

the three fides of the triangle be equal (as

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If

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figure

or fides, and which, of confequence, has

(asinACB,

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See thofe

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equicrural triangle.

TRIAMBO,

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be

faid to

Plate

TRIALETE,

is,

Geometry,

If the three lines or fides of the triangle be
is

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lines

in

three angles.

A

that

and fome anomalous plants.

TRIANGLE,

'

AB

and from A, with the
interval
C, defcribe an arc y and from B, with the interval B C, defcribe another arc x
draw the right lines
C and B C. Thus is the triangle conftrufted Hence,
as of any three given right lines, only one triangle can be
conftrudted
by determining the three fides, the whole tria triangle.

Affume

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angle

is

determined.
Wherefore;,


Triangles.

Wherefore, if in two triangles $A\hat{C}B$ and $a\hat{c}b$ (Plate XV. Geometry, fig. 9.) $A\hat{C}B::a\hat{c}b$; $A\hat{C}B::a\hat{c}b$: $C\hat{d}$; the triangles are determined in the same manner, and consequently are similar, and therefore mutually equiangular.

3. A right line, as $A\hat{B}$, and two adjacent angles $A$ and $B$, which, taken together, are less than two right ones, being given; to describe the triangle $A\hat{B}C$. On the given line $A\hat{B}$, make the two given angles $A$ and $B$: continue the sides $A\hat{C}$ and $B\hat{C}$, till they meet in $C$. Then will $A\hat{B}C$ be the triangle required.

Hence, one side and two angles being given, the whole triangle is determined. Wherefore, if in two triangles $A = a$ and $B = b$, the triangles are determined after the same manner, and therefore are similar.

Triangles, Measurement of. To find the area of a triangle, multiply the base $A\hat{B}$ (fig. 10.) by the altitude $C\hat{d}$; half the product is the area of the triangle $A\hat{B}C$.

Or thus; multiply half the base $A\hat{B}$ by the altitude $C\hat{d}$; or the whole base by half the altitude; the product is the area of the triangle.

E. gr. $A\hat{B} = 342$ $A\hat{B} = 342$ $A\hat{B} = 171$
$C\hat{d} = 234$ $\frac{1}{2} C\hat{d} = 117$ $C\hat{d} = 234$
$1368$ $2394$ $684$
$1026$ $342$ $513$
$684$ $342$ $342$

\[2)80028 \quad 40014 \quad 40014\text{ area}\]

See Quadrature.

Or, the area of any triangle is had by adding all the three sides together, and taking half the sum; and from that half sum subtracting each side severally, and multiplying that half sum and the remainder continually into one another, and extracting the square root of the product.

Hence, 1. If between the base and half the altitude, or between the altitude and half the base, be found a mean proportion; it will be the side of a square equal to the triangle. 2. If the area of a triangle be divided by half the base, the quotient is the altitude.

Triangles, Properties of Plane. 1. If in two triangles $A\hat{B}C$ and $a\hat{c}b$ (fig. 9.) the angles $A = a$; and the sides $A\hat{B} = a\hat{B}$ and $A\hat{C} = a\hat{C}$; then will the side $B\hat{C} = b\hat{C}$, and the angles $C = c$, and $B = b$; and therefore the whole triangles will be equal and similar.

2. If one side of a triangle $A\hat{B}C$ (fig. 11.) be continued to $D$, the external angle $A\hat{B}D$ will be greater than either of the internal opposite ones $B$ or $C$.

3. In every triangle, the greatest side is opposed to the greatest angle, and the least to the least.

4. In every triangle, any two sides taken together are greater than the third.

5. In two triangles, if the several sides of the one be respectively equal to the sides of the other, the angles will likewise be respectively equal; and consequently the whole triangles will be equal and similar.

6. If any side, as $BC$ (fig. 12.) of a triangle $A\hat{C}B$ be continued to $D$, the external angle $DOA$ will be equal to the two internal opposite ones $y$ and $z$ taken together.

7. In every triangle, as $A\hat{B}C$, the three angles $A$, $B$, $C$, taken together, are equal to two right ones, or $180^\circ$.

Hence, 1. If the triangle be rectangular, as $MKL$ (fig. 7.) the two oblique angles $M$ and $L$, taken together, make a right angle, or $90^\circ$; and therefore are half right.
with double of the square of the semi-base, is equal to the squares of both the sides taken together.

19. A whole triangle is to a triangle cut off by a right line, as the rectangle under the sides cut off is to the rectangle of the other two sides.

20. In a right-angled plane triangle $\triangle ADE$ (Plate X. Geometry, fig. 17.), a line $DB$ drawn from the right angle or the vertex, perpendicular to the hypotenuse, divides the triangle into two other right-angled triangles, $\triangle ADB$, $\triangle DBE$, which are similar to the first triangle, and also to one another.

Hence it follows: 1. That $EB : BD :: BD : BA$; and $AE : ED :: ED : EB$; and $AE : AD :: AD : AB$. (See Proportionals.) Whence, 2. As the angle in a semicircle is a right angle, it follows that, if from any point $D$ in the periphery of a semicircle $\triangle ADE$, a perpendicular $DB$ be let fall upon the diameter $AE$, and from the same point $D$, to the extremities of that diameter, two chords $DA$, $DE$, be drawn; the square of that perpendicular will be equal to a rectangle under the two segments of the diameter; and the square of each chord equal to a rectangle under the whole diameter and its adjacent segment: i.e. $BD' = EB \times BA$; $ED' = EB \times EA$; and $AD' = AB \times EA$.

21. In every right-angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides. See Hypotenuse and Sine.

22. If any angle of a triangle be bisected, the bisecting line will divide the opposite side, in the same proportion as the legs of the angle are to one another.

23. If the vertical angle of any triangle be bisected, the difference of the rectangles, made by the sides and the segments of the base, is equal to the square of the line that bisects the angle. Thus, if a right line $BE$ (Plate XV. Geometry, fig. 15.) bisects an angle $\angle ABC$ of a triangle, the square of the said line $BE = AB \times BC - AE \times EC$.

24. To divide a triangle into any given number of equal parts; divide the base $CD$ (fig. 16.) into as many equal parts as the figure is to be divided into; and draw the lines $A_1, A_2, \&c.$

25. If in similar triangles from any two equal angles to the opposite sides two right lines be drawn, making equal angles with the homologous sides; those right lines will have the same ratio as the sides on which they fall, and also divide those sides proportionally.

26. If in two triangles having one side common to both, from any point in that side, two lines respectively parallel to two contiguous sides be drawn, terminating in the two remaining sides, those lines will have the same ratio as the sides to which they are parallel. Hence, if those sides are equal, those lines will be also equal.

27. If through any point within a triangle three right lines be drawn, from the angular points to cut the opposite sides, the segments of any one side will be to each other, as the rectangles under the segments of the other sides taken alternately. Hence if the former segments be equal, the aforementioned rectangles will be equal, and therefore the sides of the triangle cut proportionally, and a line connecting the points of division will be parallel to the base.

28. Triangles having one angle in the one equal to one angle in the other, are in the ratio of the rectangles contained under the sides, including the equal angles. Hence, if the rectangles be equal, or the sides reciprocally proportional, the triangles will be equal.

Triangels. Solution of. See Trigonometry.

Triangels, an iron musical instrument with three sides, which serves as an accompaniment to other instruments in a military band, and in the streets: the performer supports it by a ring at the top with his left hand, and beats it with a small iron rod in his right hand. At the lowest angle iron rings are placed, which by their vibration augment the sound.

Triangels, Island, in Geography, an island of South America, in the mouth of the Orinoco, where the French settled a factory in the year 1765. Alto, one of the smaller Bahama islands, so called. N. lat. $20^\circ.51'$. W. long. $69^\circ.53'$.

Triangels, a dangerous Providence in the East Indian sea, near the N. coast of the Percei, or Prail.

Triangels, Southern, a reef of rocks and islands in the bay of Honduras. N. lat. $19^\circ.43'$. W. long. $89^\circ.40'$.

Triangular Apple-Ladder, in Rural Economy, a ladder of this sort for gathering apples from the trees with ease and without bruising them. It is about eighteen feet in height, and has two other branches, which are each of the same length, fattened by iron hoops or rings at its top part. These parts all diverge from each other when the ladder is in use, and appear somewhat in the manner of the corner rafters of a triangular roof, forming a sort of triangle. At about four feet from the ground, each branch and the ladder part has a hook fixed to it, for the purpose of stretching out a triangular cloth by; in the middle of which is formed a circular funnel of the same material. The cloth has at each corner a leather strap, pierced with a number of holes, in order that an equal degree of tension may constantly be given, whether the ladder and its branches to be much extended or not.

In collecting the apples, the gatherer, ascending the ladder, throws the fruit as he strips it from the boughs of the trees into the cloth, whence it rolls down the funnel part into the basket which is placed to receive it below.

So much injury and mischief are done to apple-trees at all periods of their growth, by letting ladders against the boughs of them, and the fruit is so greatly bruised and depreciated, as well as subjected to decay, by gathering it in the usual modes, that both practices should be discontinued, and better ones, such as the above, had recourse to in such cases.

Triangular Battalion, in the Military Art. See Battalions.

Triangular Canon. See Canon and Sine.

Triangular Compasses, are such as have three legs or feet, by which to take off any triangle at once; these are much used in the construction of maps, globes, &c. See Compasses of three legs.

Triangular Fort. See Fort.

Triangular Leaf, in Botany. See Leaf.

Triangular Numbers, are a kind of polygonal numbers; being the sums of arithmetic progressions, the difference of whose terms is 1.

Thus, Of arithmetical progress. $1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6$

are formed triang. numb. $1 \quad 3 \quad 6 \quad 10 \quad 15 \quad 21$

For the rationale and management of these numbers, see Malcolm's Arith. book v. ch. 2.

Triangular Quadrant, is a sector furnished with a loofe piece, by which to make it an equilateral triangle.

The calendar is graduated on it, with the sun's place, declination, and other useful lines; and by the help of a string and a plumbet, and the divisons graduated on the loofe piece, it may be made to serve for a quadrant.

Triangular Winding-flairs. See Stair.
TRIANGULARIS STERNI, in Anatomy, a muscle of the ribs. See INTERCOASTAL.

TRIANGULARIS GENAE, the depressor anguli oris, a muscle of the mouth. See DEGLUTITION.

TRIANGULARIS PIFIS, in Ichthyology, the name of a fish of a very remarkable figure, called in English the coney-fish, of which there are two species, the one having two horns, the other wanting that character.

The horned kind is usually fix or even fingers breadth long; and about three fingers broad; the tail ends in a long thin fin; the mouth is small, having twelve strong serrated teeth in the upper jaw, and eight larger ones in the lower; the head ribs gibbously from the mouth to the horns, and the back is humped in the middle; it has only one small fin near the tail; its eyes are large and placed near the horns; before the fin near the tail, it has four others; the tail being one, and one more being situated on the back, and two on the belly; it has two horns like cocks' spurs, growing straight out of its forehead, and two others in a contrary direction, out of its belly near the tail; it has no scales, but it has a hard skin, white on the belly, and brown every where else, and wonderfully marked with trigonal, tetragonal, pentagonal, and hexagonal figures.

The species which has no horns has a broader belly, a longer tail, and is marked all over its body only with hexagonal figures, and innumerable small tubercles: its belly is yellowish, and the rest of its body of a greyish or brownish yellow; the mouth is narrow, and the teeth small, five in the lower and eleven in the upper jaw; the eyes are large and round; it is hollow, and has very little flesh.

Both the species, which belong to the genus of the American, are caught among the rocks, on the shores of the island of Java, and are sometimes eaten by the inhabitants, being first skinned. Clus. Exot. lib. ii. cap. 27.

Willughby's Hist. Pisc. p. 150.


Gen. Ch. Cal. Perianth half-inferior, of five oblong leaves, internally coloured, pointed below the summit, permanent. Cor. none, except the calyx, which partakes of the nature of both parts, be considered as fuch. Stam. Filaments about ten, (from five to twelve) capillary, the length of the calyx; anthers roundish. Pdl. Germin almost entirely superior, oblong, abrupt; styles one or two, thread-shaped, the length of the germin, bifid on one side; figites simple. Peric. Capsule oblong, abrupt, burting all round, of two, transfierely intersected cells. Seeds one or two in each cavity, nearly ovate.

Obf. The number of figites, as well as of styles, differs in different species.


1. T. mauungua. Purflane Triantehma. Linne. Mant. 63. Willd. n. 1. Ait. n. 1. "Decand. Pl. Graffes t. 109." (T. Portulacafum; Linne. Sp. Pl. 325. Portulaca curafavica procumbens, capparida folio, flore mucroco, capsula bifurcata; Herrm. Parad. 213. t. 213. Kali curafavicum procumbens, folis fubrotundis; Pluk. Phyt. t. 95. f. 4.)—Stamens more than five. Style one. Leaves elliptico-oblong. Stem with a hairy line along the upper side.—Native of the West Indies and South America. Sometimes raised, for curiosity's fake, in our flowers, where it flowers in Summer. The root is annual. Stems a foot long, much branched, leafy, spreading on the ground in every direction, smooth, except a dense, slender, hairy line along their upper side. Leaves opposite, unequal, flaked, oval or roundish, obtuse with a small point, entire, smooth, red at the edge, from one to two inches long. Stipulas membranous, acute, half the length of the footstalk, to which they are united. Flowers axillary, few, about three together, pale and membranous, with a pair of bracteas to each. Stamens from two to ten. Germs with two ditant horns. Style, according to Linneus, solitary, rough at one side, with a simple stigma.

2. T. cryfyllina. Cryfylline Triantehma. Sm. Spicil. 24. t. 26, unpublished. Vahl. Symb. v. 1. 32. Willd. n. 2. (Papularia cryfyllina; Forsk. Egypt.-Arab. 69. Gymnophyllum cryfyllinum; Linne. MSS.)—Stamens five. Style one. Leaves elliptic-lanceolate. Stem papillary all over.—Native of the East Indies and of Arabia. We received it from Madras, by the favour of Dr. Roxburgh. Linneus cultivated it at Upfal, and has left in his herbarium specimens, with a coloured drawing, and a description. He made this plant a new genus by the name of Gymnophyllum, judging it akin to Herniaria. It would have appeared in the third number of our Spicilegium, had that work been continued; but the page, though printed, was never published. The root is perennial. Stems herbaceous (not thorny), procumbent, a span long, reddish, branched, leafy, clothed with bell-shaped papillar granulations, which in the dried specimen become hairy hairs. Leaves opposite, flaked, like Polygonum mediae in size and figure, with united membranous figites, as in the foregoing. Flowers axillary, few, one, two or three together, small, whitish with a red germin. BRACTEAS of two opposite scales under each flower. Stamens five, very short. Style one, with a divided stigma. Ripe capsule of one cell, embraced by the base of the calyx. Seeds two, one above the other, black, orbicular, depressed, rough, with concentric furrows. This species surely approaches in many points to Salsola, so far at least as to indicate a great affinity between the two genera.

3. T. pentandra. Smooth Triantehma. Linne. Mant. 70. Willd. n. 3. (Rocama; Forsk. Egypt.-Arab. 71. Portulaca affinis polygonoides, bliti folio et face despecta; Pluk. Phyt. t. 120. f. 3.)—Stamens five. Styles two. Leaves obovate. Stipulas pointes. Stem nearly smooth.—Native of Arabia. Annual, cultivated by Linneus at Upfal, but unknown in our gardens. The size and habit of the plant answer to the first species, but the stem has no hairy line, nor more than a flight papillary roughness, on the young branches only. Leaves nearly uniform, obovate rather than elliptical, on long filaks, to which the membranous figites are entirely united, without any separate points. Flowers purplish. Styles recurved. Willdenow copies Richard's error of Ractorna, for Rocama.

4. T. ficcafofa. Shrubby Triantehma. Vahl.Symb. v. 1. 32. Willd. n. 4. (Gymnocarpus decandrum; Forsk. Egypt.-Arab. 65. 1. t. 10. Desfont. Atlant. v. 1. 203.)—Stamens ten; five alternate ones imperfect. Style one. Leaves cylindrical, pointed. Stem thorny, round, smooth.—Native of the sandy deserts east of Cairo, as well as about Tunis. A rigid spreading shrub, about a foot high; its bark grey and weather-beaten. Leaves shiny, glaucous, smooth, obliquely triangular, about half an inch long in little tufts. Flowers three to five, in tufts at the ends of the branches, feoffle, violet-coloured, a third of an inch broad,
broad, hairy at their base and at their points. Seed solitary, according to professor Desfontaines, to whom we are obliged for a specimen. Vahl fuppsects there may be two seeds.

5. T. humifusa. Prostrate Cape Trianthema. Thunb. Prodr. 80. Willd. n. 5—"Style one. Leaves lanceolate. Stem shrubby, round."—Gathered by Thunberg at the Cape of Good Hope, as well as the next. We have seen no specimen of either.


7. T. decandra. Trailing Indian Trianthema. Linn. Mant. 70. Willd. n. 4. Zaleya decandra; Burnin. Ind. r. 11. t. 31. f. 3.—Stamens about ten. Styles two. Leaves obovate. Stipules pointless. Stem nearly smooth.—Native of the East Indies. The herbage of this species bears a great affinity to T. pentandra, but the flower-flasks are rather shorter. Their flowers indeed are very different, those of the present being much larger, on longish flasks, with a feby, scarcely membranous, calyx.

TRIARATHIA, in Ancient Geography, a town of Asia, in the Leifer Armenia, upon the route from Schafie to Cuscum, between Tonofa and Coduzuala. Anton. Itin.

TRIARII, in the Roman Militia, a kind of infantry, armed with a pike, shield, a helmet, and a cuirafs: they were thus called, because they made the third line of battle.

The triarii were also called poffyghani, because ranged behind the principes who bore the Rubard in a legion.

Polybius distinguishes four kinds of forces in the Roman army: the first, called pilati, or velites, he says, were a raw loddary, lightly armed. The haffati, or spear-men, were a degree older, and more experienced. The third, called principes, princes, were still older, and better soldiers than the second. The fourth were the oldest, the most experienced, and the bravest; these were always dispersed in the third line, as a corps de reserve, to sustain the other two, and to retore the battle, when the others were broken or defeated. See Legion.

Hence their name of triarii: and hence the proverb, Ad triarios ventum ex, to shew that one is at the last and hardest struggle.

TRIAS Harmonica, Lat.; Triade Harmonique, Fr.; Harmonical Triad, Eng.; in Music. This term has two different senses. In calculation, it is the harmonic proportion; in prattices, it is the perfect major chord resulting from the same proportion, and which is composed of the fundamental found, its major or sharp 3d, and its 5th. It is called a triad, because composed of three sounds; and harmonic, because in harmonic proportion; and is the sence of all harmony.


Eff. Ch. Calyx single-flowered, of two valves. Corolla of two valves; the outermost with three briskly teeth; inner with a triple dorsal awn.

1. T. junca of De Faux is given as the only species, without any account of its native country. By the figure it appears to be a slender grafs, with linear leaves, and a simple, upright, unilateral cluster, rather above an inch long; the flowers not a quarter of an inch in length. Nothing is known of the flaments, pistil, or seed. The awn, conflating of three rough equal bristles, more than twice the length of the florest, and united by a short simple base, is considered by the above author as the rudiment of an abortive florest, which idea is adopted in a familiar care by Kunth. (See TRIJENA.) We do not wish that such an awn may take place of a florest, by one of those metamorphoses so common in grafs, whose awn are known to be among the least permanent of their distinctions; but it is offering too great violence to language to use one term for the other.

TRIACOURT, in Geography, a town of France, in the department of the Meule; 7 miles S. of Clermont en Argonne.

TRIAZELA, a town of Russia, in the government of Upha; 88 miles N.N.W. of Upha.

TRIAGNOUCHA, a town of Russia, in the government of Upha, on the Ural; 140 miles E. of Orenburg.

TRIBALE, La, a town of France, in the department of the Tarn; 6 miles W.N.W. of La Caune.

TRIBALLI, in Ancient Geography, a people of Lower Media, upon the banks of the Danube, called also Servians.

TRIBAU, or TRIBOWE, in Geography, a town of Moravia, in the circle of Olmutz; 28 miles N.W. of Olmutz. N. lat. 49° 45'. E. long. 16° 29'.

TRIBE, TRIBUS, in Antiquity, a certain quantity or number of perfons; when a division is made of a city or people into quarters or districts.

The city of Athens was divided into ten tribes: the Jewish nation into twelve; or, if we separate the family of Joseph, thirteen tribes, the descendants of the twelve sons of Jacob, viz. the tribes of Judah, of Reuben, Gad, Asher, Dan, Naphtali, Ephraim, Manasfeh, Simeon, Levi, Issachar, Zebulun, and Benjamin; the poffers of Joseph being divided into two tribes, that of Manafiah, and that of Ephraim.

There were ten of these tribes that revolted, and followed Jeroboam. The other two, viz. thefe of Judah and Benjamin, adhered to the house of David, and to the worship of the true God, whilst the other tribes clave for idolatry.

This fchism, which lasted above 200 years, ended at last in the captivity of the ten tribes, which were carried away by Shalmanefer into Assyria and Media; nor does it appear from his story, that they ever returned into their own country, at least all of them, though we find it affered by some modern Jews and ancient fathers of the church.

Mention indeed is often made in the New Testament of the twelve tribes (see Matt. xix. 28. Luke, xxii. 30. Acts, xxvi. 7. James, i. 15.); and St. James directs his epistle to them; but from these passages we cannot conclude, that they were then gathered together; but we may infer, that they were fih in being. Perhaps the whole body of the Jewish nation retained the name of the twelve tribes, according to the ancient division, as we find the disciples called the Twelve, after the death of Judas, and before the election of St. Matthias. (John, xx. 24.) Moreover, there were Jews in a fufficient number of the ten tribes mixed with that of Judah, or diperfed into several parts of the world, to afford occasion for speaking of the twelve tribes, as making but one body with the Jewish nation. Of their diperfion into various parts of the Eaf, we have accounts that cannot be questioned. Whether or not we admit for W. Jones’s opinion, that the Afgans (which fea) were defended from them, Dr. Buchanan has recently confirmed the opinion, that the Pefians were carried several thousands of Jews into Babylon, from whence it is natural to conclude, that a confiderable number returned home with the others, when they were fet at liberty by Cyrus. See 2 Chron. xxxiv. 9. 1 Chron. ix. 3. Jer. i. 4. Luke, ii. 36.

The tribe of Judah did not continue more faithful to God
God than Samaria, the metropolis of the kingdom of Israel, had done. On this account they were often delivered into the hands of their enemies, and at last all carried away captive by Nebuchadnezzar in the 15th year of his reign. See Captivity and Jews.

The Roman people were at first only divided into three tribes; and from this number three, tree, it was that the word tribes, tribus, took its rise. Livy says (l. vi. c. 5.) that the appellation was derived a tributo. This division was accompanied by Romulus to the several nations he had united; the first confided of the Alban, the second of the Sabines, and the third of a mixture of fugitives, who came to seek an asylum at Rome.

Servius Tullius, fearing this partition might occasion seditions, divided the inhabitants of Rome by cantons, not by nations: accordingly, he distributed the city into four quarters, or tribes; and by reafon a great number of citizens had retired into the country about, of those he composed twenty-six other tribes; so that from this time the Roman people confided of thirty tribes.

Writers are not agreed concerning the precise number. With this from the city tribes, and the eighteen rustic tribes of Servius, as some have arranged and denominated them, the Roman people made up the number of thirty-five tribes. However this be, in after-times the number of tribes amounted to thirty-five; but they then ceased to be ranged according to the quarters of the city. The distribution depended on the censors, who formed their list at discretion, frequently confounding the country tribes with those of the city.

A man was never absolutely a Roman citizen, unless he had the jus tribus, i.e. till he was intituled to the honours of the magistrature, as also a right of voting in assembles of the people; and this is what they called jus quiritum. Hence the inhabitants of the municipal cities were only imperfect citizens, as being of no tribe.

The freed-men were obliged to purchase this right of tribus, which did not otherwise belong to them, though they were citizens of Rome.


TRIBES OF PLANTS, in Gardening, the particular kinds or sorts of cultivated garden vegetables of these descriptions, which are arranged and brought together under peculiar heads or names, according to their similar resembiances or appearances; the names of their habits of growth; and the general affinities which they bear, in some way or other, to each other. By these means, and in these several ways, a great number of different tribes of these sorts of plants are formed and constituted. Thus the time or duration of the growth of some afford several of these classes or tribes, such as the following: viz. the

Annual Tribe; that which contains all sorts of annual plants, or those only of one year's growth or duration, being often simply, on that account, termed annuals.

Biennial Tribe; that which comprehends all sorts of plants which are of perennial or many years' growth or duration, and which is applicable to trees as well as herbs, though somewhat more frequently and generally used to herbaceous perennial plants. These are occasionally called perennials merely. See ANNUAL; BIENNIAL, and PERENNIAL PLANTS.

The nature and form of the root have also some influence in the formation of these tribes, as is evident in the following:

Bulbous-rooted Tribe: that which comprehends all kinds of plants which have thick or bulbous roots; such as those of the onion, turnip, lily, crocus, narcissus, and several other kinds.

Tuberous-rooted Tribe: that which contains all sorts of plants which have thick, knobby, fleshy roots, such as those of the amonone, potatoe, Jerusalem artichoke, and many other kinds.

Fibrous-rooted Tribe: that which comprehends all sorts of plants which have small string-like fibrous roots, such as that of endive, and many other kinds. See Root.

The ligneous or woody nature of plants likewise caufes differences in this description, such as these:

Lignous or Woody Tribe: that which includes all sorts of plants of the tree or shrub kind which have woody or solid durable stalks or stems, such as those of the oak, ash, beech, and other similar kinds, as well as such shrubs as the holly, alaternus, althaea, and many other sorts. See TREE and SHRUB.

Arboeous Tribe: that which contains all sorts of plants of the tree kind, which rise with an upright main stem or stalk to a considerable height, as in the alh, beech, &c. See TREE.

Fruticoso or Shrubby Tribe: that which takes in all sorts of plants of the shrubby kind, or which have any thing of shrub-like growth, and which rise only to a moderate height, having a divided, low, flemmy, and branching bushes appearance about the bottom and other parts, as in the althea frutex, lycias, &c. See SHRUB

The habits of different sorts of plants, in regard to the loss or the retention of their leaves during particular seasons of the year, are a further source of the distinction of them in these modes.

Deciduous Tribe: that which comprehends all sorts of both trees, shrubs, and plants, which cast their leaves during the winter season, or before it commences; such as the althea-tree, the lybinga shrub, and the fennel, golden-rod, and mthn plants.

Sempervirens or Evergreen Tribe: that which comprehends all the various sorts of trees and shrubs, as well as other kinds of plants, which have the property of retaining their green leaves the whole of the year round, such as the holly, yew, box, laurel, and many others. See DECIDuous and EVERGREEN TREES.

Herbaceous Tribe: that which contains all the different sorts of the herbaceous or herb kind of plants, which moit commonly rise furnished with leaves immediately from the roots, and with soft herbaceous stems or stalks, without any sort of woodiness; but which, for the most part, decay and die about the close of the same year in which they were produced, such as the pea, bean, lettuce, mulford, celery, and numerous others. See HERBACEOUS PLANTS.
There are others which are arranged in this manner from their juicy or succulent properties, as the following tribes.

**Succulent Tribe:** this is that which includes all the sorts of plants which have fleshy, moity, juicy leaves, which are sometimes of considerable thickness, but in other cases not, such as the fenum or house-leak, the calocont or meon-thistle, creeping cerasus, &c., the aloe, the agave, and several others. See Succulent.

The manner of feeding, and the economical uses to which plants are put, are further causes of their arrangement and distinction in this way.

**Leguminous Tribe:** that in which all the different plants that it embraces have the sort of feed-veffel which is usually denominated a legume, or pod, as in all the pea, bean, kidney-bean, and other papilionaceous-flowered plants.

**Oleaceous Tribe:** that in which the various plants that it contains are of the efficient or edible kind for the table, or for being preserved and made use of for other culinary or domestic intentions. See Leguminous and Esculent Plants.

The forms of the leaves and plants, the manners of their flowering, the shapes of their flowers, the methods of feeding or fruiting, and the particular natures, qualities, and properties of plants, all have a further tendency to the introduction of more tribes of these kinds.

**Pinnated Tribe:** that in which all the sorts of the trees and plants which it contains have pinnated leaves, or those which are in the shape of wings, as is the case in a great number of different kinds, as in the acacia, the fumich, and many others.

**Enfataceous or Sword-leaved Tribe:** that which comprises plants which have fiddle-shaped leaves, as is the case in many sorts, such as the iris or flowering rufh, the gladiolus or sword-lily, &c.

**Spathaceous Tribe:** that which contains all such plants as produce and produce their flowers out of a fpahta or sheath, and which are many in number, fuch, for instance, as the nareiflans or daffodil and jonquil, the galanthus or snowdrop, and the amaryllis or lily-daffodil, Guernsey lily and the belladonna and jacobsa lily.

**Lilaceous Tribe:** that which comprehends all the sorts of plants which have papilionaceous or butterfly-flowered flowers, such as those of the pea, bean, and all the leguminous kinds of plants. See Papilionaceous Flowers.

**Campanaceous Tribe:** that which contains all the various kinds of plants which have campanulate or bell-shaped flowers, as those, for instance, of the campanula or bellflower, the convolvulus or bind-weed, and bean-kind, and others of the same sort.

**Rotaceous Tribe:** that which includes all sorts of plants which have rotated or wheel-shaped flowers, such as those of the llysichia or lefe-trife, the anagallis or pimprenel, and some others.

**Umbelliferous Tribe:** that which contains all such plants as produce their flowers in somehow the form of an umbel, as in those of the angelica, the anethum or fenel, the pallinaca or parsnip, and some others. See Umbellated Plants.

**Verticillate Tribe:** that which comprises those sorts of plants which have their flowers produced in something of the form of a verticillus or whorl, as in those of the thymus or common thyme, the hyfipus or hyfip, the melissa or balm, the origanum or marjoram, the mentha or mint, and several others. See Verticillated Plants.

**Aggregate Tribe:** that which comprehends such plants as produce their flowers in an aggregate form, consisting of numerous florets or small flowers, each having its own proper calyx or cup, but the whole of which are collected into one close aggregate, or head, as in those of the ceafias or seafius, the iatice, thrift, or sea-pink, the glubariua or globular blue daisy, and some others. See Aggregate, in Botany.

**Composit or Compound Tribe:** that which comprises those sorts of plants which have compound flowers, consisting of a great number of florets contained in one common calyx, or cup, as in those of the sun-flower, the marigold, the alfer or starwort, and many others. See Compound in Botany.

**Amentaceous Tribe:** that which contains those plants which produce their flowers in amaments of catkins, as in those of the popolus or poplar-tree, the corylus or hazel, the fagus or beech, the betulua or birch, and some others. See Amentaceous.

**Baccaceous Tribe:** that which comprehends all those sorts of plants which bear and produce any kind of berry, as the ribes or gooseberry and current, the raspberrua, the yeua, and many others.

**Coniferous Tribe:** that which contains all such sorts of trees and plants as bear the kind of fruit or seed which is denominated a cone, as the various sorts of firs, &c. See Cone, in Botany.

**Fungal Tribe:** that which takes in all vegetables of the mushroom and other similar kinds, as the common mushroom or agaricus, &c.

**Gruminous Tribe:** that which comprehends all such sorts of plants as are of the graps or grain kinds, such as the different field grasses, and those of the wheat, rye, barley, oat, and other similar kinds.

**Lutrid Tribe:** that which includes all the sorts of plants which have any thing of a lumnous appearance or hurtful or noxious quality about them, as those of the atropaga or deadly nightshade, the dara, thorn-apple or phrumonium, the nicotiana or tobacco-plant, the pelonan or love-apple, &c. the capricum or guinea-pepper, the digitals or foxglove, and several others.

**Nuisiferous Tribe:** that which comprehends all the sorts of the nut-bearing kinds of plants, as the hazle-nut-tree, the walnut-tree, &c.

**Pomaceous Tribe:** that which comprehends all such sorts of plants as bear or produce a fruit of the apple kind, as that of the pyrus malus or apple kind, the pyrus communis or pear kind, the pyrus cydonia or quince kind, the amygdalus or almond kind, the prunus or plum kind, the metiplus or medlar kind, the pruncia or pomegranate kind, and some others.

This sort of classification or arrangement of the different sorts of plants which are cultivated in the garden or pleasure-ground for the sake of their culinary uses, or the ornament which is afforded by their flowers, is often of very great utility and convenience, as supplying the means of throwing together those sorts of plants which have many circumstances and practices in their general culture and growth which have much similarity to each other, by which the common gardener has a far greater facility of raising and managing them, as well as of securing their produce in fruit or other ways. He is thereby also better enabled to make use of those of the ornamental kinds in the borders, clumps, and other parts of the grounds in which they are to be let out and placed.

**TRIBENSEE, in Geography, a town of Austria; 3 miles N. of Tulln.**

**TRIBERL, a town of the Brisau; 15 miles N.E. of Fribourg. N. lat. 48° 9'. E. long. 8° 17'.**
of the moderns, was so called from the likeness of its fruit to the instrument of war denounced in English a caltrop. (See TRAPA.) Whether the name arose from τράπη, to tear, or to injure; or as some think from τραπεζ, three, and σκότος, a calf, or a wound, may admit of controversy. The caltrop has four, not exactly three, points; and the feed-velvets of our plant has a much greater number, though the appearance of the whole very much resembles the above war-like, or rather treacherous, instrument.—Linn. Gen. 213. Schreb. 289. Willd. Sp. Pl. v. 2. 566. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 3. 41. Sm. Prodr. Fl. Grec. Sibth. v. 1. 273. Juff. 296. Tourn. t. 141. Lamarck Illustr. t. 346. Gertn. t. 69. — Clasr and order, Decandria Monogynia. Nat. Ord. Gruninales, Linn. Rutaceae, Juff. but not correctly.

Gen. Ch. Cal. Perianth inferior, of one leaf, in five deep acute segments, rather shorter than the petals. Cor. Petals five, oblong, obtuse, spreading. Stam. Filaments ten, small, awl-shaped; anthers incumbent, simple. Pist. Germen roundish, brightly, the length of the filaments; style short and thick; stigma capitate, with five rays. Peric. roundish, thorny, of either five or ten capsules, which are gibbous externally, and armed with three or four sharp thorns; angular on the inner edge and crowded together; their cells several, transverse. Seeds solitary in each cell, oblong.

Obf. T. maximus, Linneus by mistake says cifoletus, has ten rugose capsules, almost defitute of lateral fpines.

Eff. Ch. Calyx in five deep segments. Petals five, spreading. Style conical. Capsules five or ten, gibbous, spiny, with several seeds.

1. T. maximus. Great Caltrops. Linn. Sp. Pl. 553. Willd. n. 1. Ait. n. 1. Jacq. Coll. v. 4. 110. L. v. 1. 462. (T. d. 2.) Browne Jam. 222. t. 21. f. 3. T. terresfris major, flore maximod omoato; Sloane Jam. v. 1. 209. t. 132. f. i. — the figure at leaf, and part of the description. T. terresfris, fructu turbinato, folius lanuginosus; Plum. L. 252. t. 254. f. 1.) — Leaflets about four pair; the outer ones largest. Fruit turbinate, wrinkled, slightly spiny, with ten furrows. Style permanent. — Native of dry waste places, or rocky gravelly ground, in most parts of Jamaica. Sloane. The root is annual, rather deep. Stem several, about two feet long, spreading flat on the ground, branched, round, leafy, frayed, rather hairy. Leaves opposite, abruptly pinnae, leaflet hairy, an inch and a half long, of six pair of half-ovate, entire, acute leaflets; the first pair small, the third largest; on a flat flake. Stipulas awl-shaped, pale, hairy. Flowers axillary, solitary, inodorous, on simple stalks rather than the leaves, hairy, and swelling upward. Calyx permanent. Petals obvate, half an inch long, dirty white, ribbed with dull purple. Germin roundish, hairy, crowned with a conical permanent style, exceeding its own length; stigma obute, marked with five rays. Fruit hairy, composed of ten corugated tumid capsules, knobbed rather than spiny, and beaked with the thick style. Linneus certainly alludes to this species, in the observation under his characters of the genus, and not to T. cifoletus, which has the proper thorny fruit of the rest. It seems to us, that Sloane's definition and description of the flower belong, on the other hand, to cifoletus, and that hence Linneus, nevertheless, took his specific name of maximus, which is nowise suitable to the plant before us.


D d 2
Fruit with ten horizontal awl-shaped thorns. Style deciduous.—Native of Ceylon. The flens seem woody, and probably perennial. Whole plant, excepting that circumstance, much like T. terrestris hereafter described, but the leaves are more hairy, or silky. Each of the five combined wrinkled cappules is armed with a pair of sharp, tapering, prominent thorns, twice the length of the cappule; but the base is nearly, or quite, deliquit of spines. The flowers seem to be yellow, the size of the leaf, with a short, thick, deciduous style.


Leaves six pair, rather hairy, nearly equal. Fruit with ten horizontal awl-shaped thorns, and as many deflexed smaller ones. Style deciduous.—Native of the south of Europe, by way fides, as well as in cultivated ground. Dr. Sibthorp observed this species everywhere in Greece, retaining its ancient name a little altered, τριπλον. This is doublets of the τροφοδος κενταρον, or Land Caltrop, of Diofcorides. The Turks call it Demio Dikimi. We have an East Indian specimen from the late Dr. Roxburgh. The annual root produces many long, reddish, hairy, leafy, slightly branched, prostrate flens. Leaves smaller, and more numerous, than in our first species; leafy than in the second; all nearly of equal lice, the outer, or terminal, ones being, if any thing, rather the smallest. Flowers yellow, on shortish, simple, solitary, axillary flarks. Style three, hardly fo thin as the germ, deciduous. Sperma of five prominent rays. Cappules tuberculated, each with four awl-shaped thorns, of which the larger are scarcely half as big as those of T. lanuginosus. Thole at the base are still smaller, pointing directly downwards, and serve chiefly to distinguish the present species from the last. The herb has been reputed cooling and emollient, ever since the time of Diofcorides. He says the Thracians, who inhabited the banks of the Strumon, fed their horses with the green plant, and made bread for themselves of its feeds.

4. T. ciliolus. Cilus-flowered Caltrops. Linn. Sp. Pl. 554. Willd. n. 4. Ait. n. 3. Jacq. Hort. Schoenbr. v. 1. 54. t. 103. (T. terrestris major corallificius; Herm. Parad. 236. t. 236. T. terrestris americanus, argemones flore flavo; Pluk. Phyto. t. 67. f. 4.)—Leaves about eight pair, silky beneath, nearly equal. Petals twice as long as the calyx.—Native of meadows in the West Indies. A close-plant with us, flowering in June and July, but not in general culture. The root is perennial, thick and woody, though Hermann fays annual. Stem many, herbas, diffuse, clothed with handfome leaves, whose upper leaflets are smaller. Flowers yellow, large and handfome, two inches wide, their stalks longer than the correspondig leaves. Cappules, according to Jacquin, each armed with four thorns of nearly equal lice.

TRIBULUS Marinus, the caltrop-fluell, in Natural History, the name of a peculiar species of the purpura. It is of a whitish colour, and has three rows of spines.

TRIBUNAL, Judgment-Seat, the seat of a judge. The tribunal, in a court of justice, is properly the seat or bench on which the judge, and his associates, are placed, for the administration of justice, &c.

The word is Latin, and takes its origin from a seat raised from the ground, on which the tribune of the Roman people was placed to administer justice.

TRIBUNAL, among the Ancients, was also a place from whence the people were harangued.

Among the Romans, it was an eminence in a temple, or a forum, as that called pro rostris, where the people were harangued in tribes.

The French architects likewise use the word tribunal for a gallery or eminence in a church, or any other place, in which the music is placed for a symphony or concert. Tribunal, or tribunal, is also used for a room or hall in which justice is administered; such, e.g. as the courts at Wiltminter.

TRIBUNE of the People, Tribunus Plebis, in Antiquity, a Roman magistrate, chose out of the commons, to protect them against the oppressions of the great, and to defend the liberty of the people against the attempts of the senate and confuls.

The tribunes of the people were first established in the year of Rome 260. The first design of the creation was to shelter the people from the cruelties of usurers, and to engage them to quit the Aventine mount, whither they had retired in defpaleasure.

Their number, at first, was but two; and the next year, under the confultation of A. Polthamus Arucius and Callius Zicellimus, there were three more added; and this number of five was afterwards increased by L. Trebonius to ten.

The appellation tribune was given them, because they were at first chosen out of the tribunes of the army. See the article following.

The tribunes were, as it were, the heads and guardians of the people. They called assemblies of the people when they pleased; and in those assemblies they frequently annulled the decrees of the senate. Nothing could be concluded without their consent, which they expressed by subfcribing the letter T at the bottom of the decree. They had it also in their power to prevent the execution of any decree, without giving any reason for it, and merely by subfcribing Veto. This interposition was called intercessio. They sometimes even called the confuls and dictator to account for their conduct before the people. The tribunes of the people, by virtue of their office, claimed and exercised a power of mumoning the senate at any time, whenever the affairs of the people required it, though the confuls themselves were in the city. It has been taken for granted, on the authority of Valerius Maximus, that the tribunes of the people, on their first creation, were not admitted into the senate, but had seats placed for them before the door in the vellubb. But we may reaonably conclude, that a magistrate so ambitious and powerful, who could control, by his single negative, whatever passed within doors, would not long be content to fit without. Dionyf. Halie. x. 31. Middlet. of Rom. Senat. p. 129. Val. Max. Lib. ii. cap. 27.

A. Cellius says that they were not made senators before the law of Atinibus, who is supposed to be C. Atinius Labeo, tribune of the people, A.U. 623; but that cannot possibly be true, since it is evident from the authority of Dionysius, that near four centuries before, the tribunes, by the mere weight and great power of their office, had gained an actual admittance into the senate, within two years after their first creation; in which we find them debating and enforcing, with great warmth, the demands of the commons, for a liberty of intermarriages with the nobles, and the choice of a plebeian confus. So that the intent of this Atinian law could not be, as it is commonly understood, that the tribunes should be senators in virtue of their office, for that they had been from the beginning; but that for the future they should always be chosen out of the body of the senate, or, which is the same thing, out of those who had already borne the office of quaeflor. A. Cell. xiv. 8. Vide Pighil.
TRI


Sylla, the dictator, was the first who professed to put a stop to the encroachments of the tribunes, A. U. 672; but under Cotta, the confid, they recovered part of their power. A.D. 672, and in 683, Pompey the Great re-established them in the possession of their ancient privileges. Their power subsisted till the time of Julius Cæsar. And in the year of Rome 731, the senate by a decree transferred the whole authority of tribunes of the people to Augustus and his successors, so that they had little more than the name and form of magistrates; whence the emperors were said to be tribunuti potestate donati. Accordingly, Augustus himself was tribune for thirty-seven years; Tiberius affumed the fame quality; as likewise did his successor; signifying the year of their tribunate on their medals and coins; but their design in it was only to pollute themselves of all the authority, that there might be nobody to oppose them.

In the time of the emperors Nerva and Trajan, the dignity of tribune of the people was a mere title, without office and honour; and thus it continued till the reign of Constantine the Great, after which there occurs no mention of this magistrate.

TRIBUNE of the Soldiers, Tribunus Militum, or Military, an officer in the Roman army, who commanded in chief over a body of forces, particularly a division of a legion; and was much the fame with our colonel, or the French major de camp.

There is a distinction of the tribunes into latriclavi and anguliclavi: those born of noble families were allowed, after they were made tribunes of a legion, to take the latriclavi. The rest were only to wear the anguliclavi; whence Suetonius takes care to inform us, that his father was tribunus latriclavi of the thirteenth legion. Over these tribunes of legions and cohorts, there were other tribunes who commanded in the absence of the consuls, and who were invested with a confular authority. Budæus will have thebe to be much the fame as the marshals of France, or, at least, as our lieutenants-general.

Romulus likewise established a tribune of the cavalry, tribunus equitum, who was the fame with the magister equitum under the dictators, the first officer after the kings.

The tribunes of the foedery were of an elder standing than thofe of the people: thofe latter being elected out of the former. Varro will have it they were called tribunes, becaufe, at first, they were only three in number in each legion, when the legion confifted of three thousand men, taken out of the three tribes then on foot. In proportion as the legion was increafed, the number of tribunes was likewise increafed to the number of five.

At first, the nomination lay in the general of the army; but in the year of Rome 391, it was appointed, that the people should nominate one part, and the general another; the latter were called Rufuli, from Rutius Rufus, who passed that law.

Thofe chosen by the people in the comitia, were called comitiati; they were indifferently either patricians or plebeians; and they had the fame marks of honour as the confuls themselves. The tribune of the pretorian cohorts was the captain of the guards.

TRIBUNE was also an appellation given to various other officers; as the tribuni erarit, tribunes of the treasury. Tribune of the elecors, or Roman light-horse, the officer who commanded them. Tribuni fabricarum, those who had the direction of the making of arms. Tribuni marinorum, tribuni nelanorum, and tribuni vestitum, mentioned in the Theofban Code, as intendents of the public shows, and other diversions.

The title of tribunus, tribunus, was also given to the chief of each tribe.

TRIBUNITIAN, TRIBUNITIUS, a term among antiquaries and medallists. The tribunitian power was the dignity, office, or authority of a tribune of the people.

This power was assumed by the emperors, and makes one of the chief titles they bear on their medals: the quality was first introduced by Augustus, to keep the sovereign authority over the other magistrates without either taking that of dictator or king. Indeed, it was offered to Julius Cæsar, but he defpised it. Augustus is the first who used it, and his successors followed his example. They reckoned the years of their empire on their medals by those of their tribunitian power.

This power was sometimes given them for a certain number of years, and sometimes for ever. Sometimes the emperors would communicate the power to such as they associated, or as they intended to succeed them, and Tiberius held it fifteen years with Augustus. But this practice only obtained till the time of Valerian and Gallienus. After them we only find T. P. II. in Claudius; T. P. V. in Aurelian; and T. P. in Probus. This, however, is only to be understood of medals; for in inscriptions we find it after that time.

Cardinal Noris and F. Pagi have disputed about this tribunitian power, in which it consisted. The first maintains, that it did not at all differ from that of the ordinary tribunes, which consisted in three things: 1. In the right of opposing all the acts and resolutions of the other magistrates. 2. In that it rendered their persons facred and inviolable. 3. In a power of making edicts and laws.

F. Pagi afferts, that it made an addition to the power of the tribunes; that the privilege it conferred of making edicts, was more ample than that of the ordinary tribunes; besides, that it carried with it a power of convening the senate at pleasure.

M. Spanheim is of F. Pagi's opinion; he believes that the tribunitian power had much the advantage of the tribunes: 1. In that it was peculiar to the patricians, and did not reduce the person who held it to the degree of a plebeian.

2. In that it was not confined to the city of Rome alone, like the other; but that it extended throughout the empire, as well as the proconfular power, which was usually annexed to it.

3. That the dignity of the tribunes was inferior to that of the pretors; whereas the tribunitian power of the Cæsars conferred, according to Tacitus, a sovereign authority over all magistrates, and rendered such as it was communicated to, equal to the emperors, and even made them their colleagues in the empire; besides the power of opposing the enterprises of all the other magistrates; and that it rendered their persons sacred, and gave them a right to assemble and dismiss the senate; which were privileges the tribunitian power had in common with the tribunes.

F. Hardouin thinks we should distinguish two tribunitian powers: the one civil, the other military; but the proof he brings of them is very weak. M. Spanheim says, his distinction is only founded on vain conjectures, none of which deserve notice.

The learned are greatly divided as to the month and day on which the tribunitian power commenced: Sigerius and Petavius will have it begin on the 1st of January; others, as Perizonius, on the 5th of the calends of July; M. Toirmard, on the fourth of the ides of December: Onuphrius, cardinal Noris, F. Pagi, &c. on the day of the emperor's accension.
acclimation to the empire; with this difference, that F. Pagii takes it to be on the fifth of the calends of the month in which the emperor was proclaimed; and that this day was, for this reason, held sacred among the Romans.

F. Hardouin thinks, that on medals the tribunitian power, interposed on the anniversary of the building of Rome, viz. the eleventh of the calends of May, excepting on the Greek medals, where it begins in September, in regard this month, which began the Greek year, was near the time when the tribunitian power was first conferred.

Of all these sentiments, the most probable is that of Onuphrius, &c. setting aside the restriction of F. Pagii. See M. Spanheim, Differt. xii. tom. ii. p. 429.

TRIBUTA COMITIA. See COMITIA.

TRIBUTARY, TRIBUTUS, one who pays tribute to another, in order to live in peace with him, or to share in his protection.

The republic of Ragusa is tributary to the grand Turk; so also is the chain of Little Tartary, &c.

TRIBUTE, TRIBUTUM, a tax, or impost, which one prince or state is obliged to pay to another, as a token of dependence; or in virtue of a treaty, and as a purchase of peace.

The Romans made all the nations they subdued pay them tribute. Mahomet laid it down as a fundamental of his law, that all the world should pay him tribute.

In the states of the grand signor, Christian children are taken, by way of tribute, to make agemoglians, janizaries, &c.

Tribute is sometimes also used for a personal contribution, which princes levy on their subjects by way of capital, or poll-money.

In this it differs from an impost, which is properly what is laid on merchandises.

TRICADIBA, in Ancient Geography, an island of India, upon the coast, on this side of the Ganges, in pawning from the gulf of Canticopel to the Colchic gulf, and to the S. of the island of Heptanea. Ptolemy.

TRICE, in Botany, so called from τρίς, τρία, a hair, because they seem composed of a horn-hair rolled, or partly folded, into a little round black head, are the peculiar fructification of the genus of Lichens named Gyrophora. See that article; as well as Lichenes, their eighth kind of reception.

TRICALA, in Geography, a town of European Turkey, in Macedonia, on the Strimon; 30 miles E.N.E. of Saloniki.—Alfo, a town of European Turkey, in Thessaly; 21 miles S.W. of Larissa.

TRICALORE, a town of Hindoostan, in the Carnatic; 38 miles W. of Pondicherry. N. lat. 11° 58'. E. long. 79° 21'.—Alfo, a town of Hindoostan, in the Carnatic; 17 miles S. of Tanjore.

TRICARICO, a town of Naples, in Basilicate, the fee of a bishop, suffragan of Accenza; 13 miles S.E. of Accenza. N. lat. 45° 43'. E. long. 16° 8'.

TRICARIUM, in Botany, a genus of Lourcerio's, the name of which alludes to the three nuts of the fruit, being derived from τρίς, three, and καρυς, a nut.—Lourcer. Cochin. 557.—Claf and order, Monocot. Tetrandra. Nat. Ord. Ramian, or possibly Eleagni, of Jufficue.


Female, interspersed with the male. Cal. Perianth inferior, minute, in four deep ovate divisions. Cor. none. Pflg. Germen superior, roundish; style none; stigma laciniate.

Peric. Drupa roundish, flabby, of three cells. Seed. Nuts solitary in each cell, roundish, with three furrows.


Female, Calyx in four deep segments. Corolla none. Stigma laciniate. Drupa with three nuts.

1. T. cochichinence.—Found in the woods of Cochinchina, where it is known by the name of Cyst Trim. un. A tree of a middling stature, with ascending branches. Leaves alternate, small, ovate, entire, smooth. Flowers red, in long, fimple, slender, aggregate, nearly terminal spikes or clusters. Drupa of a moderate size, yellow, smooth, eatable.—We cannot refer this plant to any described genus, nor are we certain whether it belongs to either of the above natural orders, or to the Euphorbiaceae, or perhaps the Terebinthaceae, of Juffieu. Difficulties attend each supposition.

TRICASSES, in Ancient Geography. See TRECCASSES.

TRICASTINI, or TRICASTI, a people of Gallia Narbonnensis. Hannibal passed through this country in his way to the Alps. Mention is made of these people at the time of the march of the Gauls into Italy, under the conduct of Bellofexis; and Pliny as well as Ptolemy take notice of them, the former specifying Aquae as their capital. It is most certain that they inhabited the left bank of the Rhone, in a small country called Tricalina.

TRICCA, a town of Greece, in Thessaly, in the Ellymite territory. A modern place, named "Tricala," gives its just position, and answers to Strabo's account of the situation of this town. Venus was worshipped in this city, and the inhabitants offered to her sacrifices of fowle.

TRICCINA, a town of Pannonia, on the route from Sirmium to Carnuntum, between Pons Manueltianus and Cimbrianae. Anton. Itin.

TRICE, in Geography, one of the Nicobar islands. N. lat. 7° 30'. E. long. 94° 5'.

TRICENNIAL. See TRENAL.

TRICEPS, in Anatomy, a name given to a large muscle of the arm, and to one of the thigh, from the circumstance of their arising by three distinct portions.

Triceps adductor cruris, (triceps femoris; foss-pubis, foss-pubi, and ischi femoris; adductor longus, adductor brevis, and adductor magnus; long, short, and great heads of the triceps). This muscle is placed at the upper and inner part of the thigh, consisting of three flattened portions, distinct from each other, making up the large mass of muscle on the inside of the limb, and extending from the pelvis to the linea aspera of the thigh-bone.

The long head of the triceps, adductor longus or primus, the fourth in order of the three portions towards the front, is elongated and flattened, narrow above, and considerably wider below, and extends from the front of the pubes to the middle of the linea aspera. It arises by a narrow but strong tendon from the pubes, close to the lymphysis; the muscle descends, passing at the same time obliquely forwards and backwards, and increasing greatly in breadth: it terminates below in a broad and flat aponeurosis, fixed to the middle of the linea aspera, in an extent of about three inches. Some fibres join the tendon of the adductor magnus, while others unite with the vastus externus. The facia lata, the fartorius, and the crural artery, cover it in front: it covers behind the two other adductors. Its outer edge is parallel to the inner margin of the pectinisus, and connected to it by a cellular line: its inner margin is much longer, and covered, in nearly its whole extent, by the gracilis.

The short head, adductor brevis or secundus, is also of a flattened figure, placed at the upper and inner part of the thigh, and extending from the pubis to the upper part of the
linea afera. It arises, principally by feby fibres, from the anterior surface of the body and ramus of the pubes; it paffes obliquely downwards and outwards, with a little obliquity backwards, becoming broader and thinner, and having an attachment of about three inches to the linea afera, from the little trochanter downwards. Here it is closely connected to the two other adductors and to the aponeuros. The perforating arteries go through its fibres. The pectinals and adductor longus cover it in front; the adductor magnus behind. The inner edge is partly covered by the gracilis, partly concealed between the firt and third adductors: the outer corresponds to the obturator externus and the tendon of the psoas magnus.

The adductor magnus or tertius, or the great head, is a broad and thick mass, flattened, nearly triangular, placed at the infide of the thigh, where it reaches from the ilium to the whole length of the linea afera, and to the tubercle of the internal condyle. It arises, by a strong aponeuros and by feby fibres, from the external surface, and from the margin of the ramus and tuberosity of the ilium. From this point the muscular fibres spread out into a great breadth, and take very different directions; the superior fibres going nearly transversely, the middle obliquely, and the inferior almost perpendicularly downwards. The general direction of the muslce is from above downwards, and from within outswards. Its attachment begins at the upper end of the linea afera, just below that of the quadratus: it is fixed to the whole length of that line, being connected to the two preceding muscles. When the linea afera bifurcates at its termination, the adductor magnus divides into two portions; an external or posterior, which ends in a point between the vatus internus and the short head of the biceps; and an internal or anterior, which is connected to the edge of the vatus, and defends with it to the internal condyle. These two portions have between them an interval, occupied by the femoral artery and vein: this interval is covered in front by an aponeuros, extended from the adductor to the triceps, and passing over the femoral artery. There are other openings in the aponeuros for the passage of the perforating arteries. The adductor magnus is fixed to the linea afera by short aponeuros; and to the tubercle of the internal condyle by a strong tendon, which is expanded above into a broad aponeuros. The muscular fibres pass between the tendon and aponeuros, which fix the muscle to the ilium, and those which are connected to the femur. The internal fibres are very long, and directed obliquely downwards and outwards: the middle ones are shorter, and directed more outwards, and the external or upper are the shortest, and nearly transverse.

The frist and second adductors, the fartorius, and the crural artery, cover it in front: the femi-tendinous, femi-membranous, biceps, gluteus magnus, and femoral nerve, cover it behind. The inner edge is covered by the gracilis, fartorius, and faciua; the outer edge is the infexiton in the linea afera. The upper margin, or the bafe of the triangle, is parallel and close to the under edge of the quadratus; the lower extremity, or apex, is the tendinous attachment to the condyle.

The triceps will move the thigh in the direction of adduction, or towards the opposite limb: it will carry one thigh across the other, as in fitting crosf-kned; it will prefs the thighs against any thing between them, as the fides of the horse in riding. The frist and second heads will bend the hip: the third will extend it, when it has been previously bent. All three will rotate the thigh outwards. By draw-ing the thighs inwards, the triceps musfles keep them perpendicularly under the pelvis, so that they support it, and through it the whole upper parts of the body. When we stand on one leg, the triceps will regulate the degree of inclination of the pelvis over the thigh, and prevent it from falling over on that fide.

Triceps extenfor cubiti. (triceps brachialis; anconeus longus, externus, and internus. Winflow: fcapulo-humero-olecranon,) a large thick musle, of an elongated figure, covering the back of the arm, and extending from the fcapula and humerus to the olecranon. Its long head arises from the inferior edge of the fcapula, juft below the glenoid cavity, by a flat tendon, about three-quarters of an inch broad: the second or external head commences, in a pointed form, from the back of the humerus, a little below its head; and the third, internal, or shortfet head, begins on the inner and posterior part of the humerus, an inch below the second. The two latter are seperated from each other by an interval, in which the profunda humeri major artery runs, accompanied by the radial or muscular spiral nerve: this veefel and nerve continue their course, from the inner to the outer fides of the limb, between the muslce and the bone. Below the points mentioned already, as the origins of the second and third heads, these portions arife by feby fibres from the whole posterior surface of the humerus, except where the radial nerve and the profunda humeri fads, and from the inter-muscular aponeuros fixed to the lateral ridges of the bone. The long or middle head continues distinct from the others for fome distance, paffes behind the shoulder-joint, between the teres major and minor muscules, and in front of the latiflimus dori; it then foon joins the two others. It is first thin and flattened; then increafes in fize. The two other heads are pointed and thin above, and increafes gradually: they all then join about the middle of the humerus, which is the thickest part of the musle; for below it again decreafes. From the aponeuros of the middle head, and from the back of the humerus, the feres are continued obliquely downwards and backwards into a broad and flat tendon, which covers the lower and posterior part of the musle, becomes narrower and thicker as it defends, paffes behind the elbow-joint, clofely adhering to its fynovial membrane, and is inserted into the upper and posterior rough extremity of the olecranon. Several feres are detached from it to the fefia of the fore-arm, and particularly to that part of the fefia which covers the anconeus.

The posterlur surface of this muscle is convex; covered above by the teres minor and deltoid, and in the reit of its extent, merely by the fefia and skin. The anterior surface is in contact above with the subficallaris, teres major, and latiflimus dori; with the whole back of the humerus; and with the fynovial membrane at the back of the elbow. The outer edge is fixed to the external ridge of the bone, and to the external intermuscular aponeuros, the attachment being interrupted only at the paffage of the radial nerve. The internal edge is fixed to the corresponding parts on the inside; the ulnar nerve lies on it. The upper extremity is divided into three portions, forming the three heads already described: the lower extremity is fingle.

The triceps extends the elbow-joint, by moving either the bones of the fore-arm on the arm, or vice verfa. Its long head may carry the arm backwards.

Triceps, in Mythology, a surname given to Mercury, becaufe he exercises his functions in heaven, on earth, and in the infernal regions, and is exhibited under three different forms, according to the three different places in which he is employed.

Tricer,a, in Botany, from τρίς, three, and κερα, a horn, becaufe of the three horns, originating in the permanent
TRI

nent styles, which crown the feed-veil. Dr. Swartz had originally called this genus Crantzia, but another having been so named by Schreber, he adopted the above, which is very expressive.—Swartz Ind. Occ. 333. t. 7. Schreb. Gen. 630. Willd. Sp. Pl. v. 4. 338. Mart. Mill. Dict. v. 4. (Crantzia; Swartz Prodr. 38.)—Clafs and order, Monocot Tetrandria. Nat. Ord. Tricoce, Linn. Euphorbes. Jiff.

Gen. Ch. Male. Cal. Perianth of one leaf, deeply divided into four lanceolate, acute, erect, coloured segments. Cor. none. Stam. Filaments four, fleshy, cylindrical, inclining to ovate, erect, longer than the calyx; anthers terminal, ovato-lanceolate, acute, erect, furrowed along one side, recurved after flowering.

Female, in the same tuft, or cluster, Cal. Perianth of five ovate, acute, erect, coloured, permanent leaves. Cor. none. Pil. Genus superior, somewhat triangular; filies three, short, somewhat conical, separable at length into two parts; filaments linear, longer than the filaments, spreading, recurved, channelled, permanent. Peric. Capsule turbinate, triangular, with three cells, three valves, and three recurved horns, each horn splitting, by the opening of the elatic capsule, into two parts. Seeds two in each cell, oblong, triangular, polished, each enveloped in a whitish membranous lax tunic.


Female, Calyx of five leaves, inferior. Corolla none. Styles three. Capsule with three cells, three elatic valves, and three horns. Seeds in pairs, with a membranous tunic.

1. T. leviugata. Smooth Tricera. Swartz Ind. Occ. 333. Willd. n. 1. (Crantzia leviugata; Sw. Prod. 38. Vahl Symb. v. 2. 99.)—Leaves ovato-lanceolate, triple-ribbed; veinslets beneath. Umbels axillary.—Native of boshy hills, in the western part of Jamaica, flowering in spring. Swartz. Vahl received it from Santa Cruz.—A branching flurb, two or three feet high; its branches long and spreading, smooth, leafy, obscurely quadrangular. Leaves fleshy, opposite, two-ranked, an inch long, acute, convex, entire, very smooth, rather rigid. Footstalks short, round. Flowers white, in small, axillary, opposite, fleshy umbels; the males from four to eight, with little white opposite bracteas on their partial flanks; female solitary in the centre, rather larger, fleshy, conspicuous for its long spreading filaments. Capsule the size of a large pea, with three taper horns, exceeding its own length. Seeds black, and shining, in a loose white tunic. Dr. Swartz justly indicates the affinity of this plant to Buruss, from which it is principally distinguished by the want of a corolla, the form of the filaments and filigmas, and the tunic of its seeds.

2. T. citrifolia. Lemon-leaved Tricera. Willd. n. 3. —"Leaves ovato-oblong, pointed, triple-ribbed, veiny on both sides, Clusters axillary."—Gathered by M. Brdemeyer in the Caraccas. A furb fifteen feet high, resembling the Coffee-tree, branched, with a pale-grey bark, and hard yellow wood. Leaves rigid and shining, four inches long, and two broad, on short stalks. Clusters about an inch in length, of about ten white male flowers, on short, alternate partial flanks, with minute, acute bracteas, and one solitary, fleshy, terminal female flower. Filaments a little compressed, most tumid in the upper part. Fruit much as in the foregoing.

3. T. cordifolia. Heart-leaved Tricera. Willd. n. 5. —"Leaves elliptical, obtuse, veiny; somewhat heart-shaped at the base. Flowers in lateral tufts."—Native of the West Indies.—A furb, with round grey branches; the young ones somewhat quadrangular, smooth. Leaves opposite, fleshy, half an inch long, coriaceous, entire, finely veined on both sides, sometimes emarginate; shining above; paler beneath. Flowers small, on the last year's branches. Wilderow.

TRICEROS, a genus of Lourieiro's, has precisely the same derivation as Tricera. (See that article.) The latter being a clear and well-established genus, we cannot allow one whole history to be obscure, and which may possibly be already known to systematic botanists, under some other denomination, to "exalt its horns" against its brother. As to priority of date, there is little to consider, they having been published within a year of each other, the author of each thinking his the original name. We shall, notwithstanding, here give the characters of the Triceros, for the information of those who may wish to inquire what it is.—Lourieiro. Cochinn. 184.—Clails and order, Pentandria Tricynia. Nat. Ord. . . .

Gen. Ch. Cal. Perianth inferior, of five acute, spreading, permanent leaves. Cor. Petals five, oblone, spreading, longer than the calyx. Stam. Filaments five, capillary, about the length of the petals; anthers ovate, of two cells. Pil. Genus superior, roundish, unequal; fililies three, short, distant from each other at the base; filaments simple. Peric. Berry coriaceous, round at the base, with three horns at the top, of three cells. Seeds roundish, pointed, two in each cell.


Obi. Lourieiro says "haca diperma," by which, according to his frequent mode of expression, he means there are two seeds in each of the three cells; at least, fo we feel ourselves obliged here to understand him.

1. T. cochinchinens. Cay au rong of the natives of Cochinchina, where this plant grows wild on the hills. It is a tree of a middling stature, with spreading branches. Leaves bipinnate, with two pair of ovate, pointed, serrated, rigid leaflets, besides a terminal one, in each subdivide. Flowers white, in loose, nearly terminal, clusters. Berries small, ufeles.

TRICETO, in Geography, a town of Naples, in Calabria Citra; 14 miles E.S.E. of Scalea.

TRICHECHUS, in Zoology, a genus of the order of Bruta, and class of Mammalia, in the Linnaean system; the characters of which are, that it has no fore-teeth in the fully grown animal, either above or below; that it has foliary tusks in the upper jaw; that the grinders on both sides are formed of a rugged bony substance; that the lips are geminated or doubled; and the hinder feet, at the extremity of the body, united into a fin.

This genus is altogether marine, comprehending few species. Geeluin, in his edition of the Linnaean system, enumerates the three following:

Species and Varieties.

Rosmarus, the Rosmarus of Johnston, the Moris of Buffon, the Sea-boos of Rays and Ellis, and the Artie Wallis of Pennant and Cook's last voyage. It is characterized by its diatant, exserted tusks. It inhabits the Northern seas, and chiefly within the artic circle. It grows to a large size, having been found 18 feet long, and 12 feet in girth round the body. Its form is inelegant; having a small head, short neck, thick body, and short legs; the lips thick, and the upper one cleft into two large rounded lobes, the surface having numerous semi-transparent bristles of a yellowish tinge, and about the size of a fraw in diameter, and three inches long, pointed at their extremities; the
eyes small; round orifices instead of ears; the skin thick and wrinkled, and scattered over with short brownish hairs; with five toes on each foot, connected by webs; the hind-feet broader than the fore-feet, and the tail very short. In the upper jaw are two long tusks, sometimes two feet but generally about one foot in length, without cutting teeth, and with four rounded grinders. These animals are found about the northern parts of America, in the gulf of St. Lawrence between 45° and 46° lat., in Davis's straits, and within Hudson's bay in lat. 62°; in great numbers about Spitzbergen, also on the coast of Greenland and of Nova Zembla, and on the headlands extending towards the north pole. They are gregarious, produce their young, one at a time, early in the spring, and feed on sea-plants, shell-fish, &c.

Unprovoked the walrus is harmless, otherwise furious and vindictive. The female, when surprised on the ice, flings its young into the sea, plunges after it, and, having carried it to a safe distance, returns with great rage to revenge the injury. They sometimes pull their teeth in the boats, to sink them, or crawl under them, to overtop them, indicating, by gnashing their teeth and roaring frightfully, great tokens of rage. Their attachment to one another is very strong; for a wounded walrus plunges to the bottom, and rises again cuddled up to the others. The walrus suffers no injury which they receive infall. They are said to lie on the ice in herds of many hundreds, loudly roaring, and giving notice of ice in the night or in a fog, when it could not be seen; some of the herd are always on the watch, who, on the approach of danger, awake the rest. They are soon frightened by a flash in the muktan-net, and plunge into the deep; but the female will defend the young to the last, on the ice or in the water; nor will the young one quit the dam, though he be dead. In the gulf of St. Lawrence, this animal is called a Sea-cow, and it is said to resemble a cow much more than a horse, which name may probably be a corruption of the Russian name Morfe. The teeth of the walrus are used for ivory: the animals are killed chiefly for the sake of the oil; and it is said that a very strong and elastic leather may be prepared from the skin.

DUGONG, the Dagon of Buffon, and the Indian Walrus of Pennant, with approximate, exerted tusks. This animal inhabits the reefs about the Cape of Good Hope and the Philippine islands.

MANATUS, the Manati or Sea-cow of Ray, and Lamatin of Buffon; without tusks, or slightly hairy; and with a horizontal tail in place of hind-feet. Found in the larger rivers as well as seas of Guiana, and growing to the length of 16 or 18 feet; the skin being dark-brown, with feathered hairs upon it; the feet with five toes; the body nearly of the same thickness to the tail, when it suddenly narrows; the tail flat, of the shape of a spatula, thicker in the middle, and thinner towards the edges. The T. Chifuis, or Clibusus's Manati, is supposed to be a variety: it grows to an enormous size in the South American rivers. As an article of food, it is said to be superior to any other animal of this genus, particularly the young. It is taken by means of harpoons. The Indians take great numbers, by making clamps across the mouths of the shallow lakes formed by the floods. Dr. Shaw mentions a manati, called by the inhabitants of the country, on account of its gentle nature, "Matum," which, at the time of the arrival of the Spaniards, was kept by a prince of Hapaniola in a lake adjoining to his residence: it hated the Spaniards, but would offer itself to its Indian favourites, and carry over the lake ten at a time, singling and playing on its back. The T. Hydrophibucus, or Sea-ape Manati of Pennant, is only known from the description of Steller, who, near the coast of America, saw a singular animal which he named a sea-ape, and which Pennant supposes to belong to this genus. It was an animal that delighted in frolic, and sported like a monkey.

T. Asyrralis, the variety of T. Manatus, according to Gmelin's Linnaeus, but a distinct species in Shaw's Zoology; hairy, with four-toed unguiculated feet, or with a horizontal tail in place of hind-feet; the round-tailed Manati of Pennant; growing to the length of 14 or 15 feet, and found in the rivers of Africa, particularly in the Senegal. The specimen in the Leverian Museum was about six feet and a half long, and three feet eight inches in circumference in the thickest part of the body, and in the thinnest part near the tail about two feet two inches. The flesh of this animal is said to resemble veal; but it is chiefly killed by the Negroes for the sake of its blubber or fat.

T. Borotalis, a variety of T. Manatus in Gmelin's edition of Linnaeus, but a distinct species in Shaw's Zoology; hairless, with feet furnished neither with toes nor nails; or with a horizontal tail in place of hind-feet; the whale-tailed Manati of Pennant. It approaches nearly to the whale tribe; it never goes ashore, nor attempts to climb the rocks, like the walrus and the seal. It brings forth in the water, and, like the whale, suckles its young in that element. It is the last of the seas about the Aleutian islands, but never appears off Kamtchatka, unless blown thither by a tempest. It is the same species that inhabits near Rodriguez, or Diego Reys, an island eait of the Mauritius, and probably extending to New Holland. These animals live perpetually in the water, but in calm weather frequent the mouths of rivers in great numbers, and approach in time of flood so near the land, that they will suffer themselves to be fished with the hand; but if hurt, swim out to the sea, preferentially returning again. They live in families, one near another; each constituting of a male, a female, a half-grown young one, and a very small one. The affection between the male and female is so great, that if the latter is attacked, the former will defend her to the utmost; and if she is killed, will follow her carcass to the shore, and for some days swim near the place where it was landed. They are very voracious, and when full of the food that grew in the sea, fall asleep on their backs. The back and sides are generally above water, and gulls are found perching on their backs, in order to pick up the infects which they find upon them. They are taken by harpoons fixed to a strong cord; but when struck, it requires the force of thirty men to draw them on shore. When a manati is struck, its companions swim to its assistance, and make many efforts to overturn the boat, or break the rope of the harpoon, and others will strike at the harpoon with their tails. They make a noise, by loud breathing, like the snorting of a horse. Their size is enormous, being 28 feet long, and 8000 lbs. in weight. The circumference of the body near the shoulders is 12 feet, about the belly 26, near the tail 4 feet 8 inches, the head 31 inches, the neck near seven feet; and hence we may infer the deformity of the animal. Near the shoulders are two feet, or rather fins, two feet two inches long, without fingers or nails; beneath they are concave, and covered with hard bristles; the tail is thick, strong, and horizontal, terminating in a thick black fin, and resembling the substance of whale-bone; the skin is thick, hard, and black, unequal on its surface, like the bark of oak, so hard as fearfully to be cut with an axe, and without hair; beneath the skin is a thick blubber, tainting like oil of almonds. The flesh is coarser than beef, and will not soon putrefy; that of the young ones has the taste of veal. The skin

TRICCHERIÆ, in Natural History, the name of a genus of fossils, of the clafs of libraria; the characters of which are, that they are not elastic, and are composed of straight and continuous filaments.

The word is derived from the Greek τικτος, capillaments or fibres. The bodies of this genus are divided into those which have narrower filaments; and there are fixed known species of it, all which turn very readily to a fine platter, like the gyphys; and some of them are found in particular places in such great abundance, that it would be very advantageous to collect and burn them. Hill.

TRIChestrUM, the name of a genus of fossils, of the clafs of the felonites, but differing extremely in figure and finiture from the common kinds.

The word is derived from the Greek τικτος, hair or filaments, and σειρια, a star, and expresses a set of bodies, composed of filaments arranged into the form of a star. The felonites of this genus are composed of filaments, scarcely any where visibly arranged into plates or scales, but disposed in form of a radiated star, made up of a number of disjunct filiae.

Of this genus there is only one known species, which is of a pale brown, and is composed of extremely fine and slender filaments. It is formed like the lepaftrum in the accidentally open cracks in the septaria, or ludus Helmontii, and is no other way different from the bodies of that genus, than as in all the felonites the plates they are composed of are made up of filaments nicely arranged: in this, as in some other of those bodies, the filaments have never arranged themselves into plates at all, but are disposed into the form of a star composed of single threads. This body very readily and regularly splits according to the arrangements of the fibres; and is in some pieces tolerably pellucid.

It is found only in one place, so far as is yet known, which is under the cliffs of Sheppey island, in Kent; where it is very plentiful, and makes a very elegant figure on the broken masses of septaria, which are in immense numbers strewn upon the shore. Hill.

TRICHA, in Botany, first, we believe, received its name from Haller, though he admitted some things into this genus of Fungi, which other botanists have rejected, or referred to other places. The above name is formed from τικτος, σειρια, a hair, or bristle, in allusion to the internal mafs of elastic fibres, gradually expanding after the head bursts.- Hall. Hist. v. 3. 114. Perf. Syn. Fung. 176. Lamarck t. 890.—Clads and order, Cryptogamia Fungi. Nat. Ord. Fungi.

Eff. Ch. Head at length burrying irregularly, permanent. Internal fibres compact, attached to the base of the head, expanding elastically, and discharging the powdery feeds.

To shew the limits of this genus, as defined by the most eminent botanists in this department, we shall give a comprehendious view of Perfoon's eleven species.

Sect. 1. Head tuberibus, or ear-shaped.

1. T. Betoniti. "Perf. Difp. Meth. 9. and 54." ("T. pyriformis; Hofm. Veg. Crypt. v. 2. t. 1. f. 1.")—Stalked, cluftered, opaque, dark red; flarks longer than the heads, combined, somewhat racemose.—Pou discontinued trunks of trees in autumn. Several specimens, coherence together, form a fort of tuft. Perfoon mentions a small and simple—flaked variety, with a solitary head, which he supfuces may be T. ferotina of Schrader's Journal, v. 2. 67. t. 3. f. 1, (not f. 2, as erroneously cited by the author, and by Perfoon; that being Stilbum tomentosum, p. 65.) The figure having been so widely mistaken, may account for the doubt expressed; but we are left in great uncertainty as to what Perfoon intended by his variety.

2. T. rubiformis. "Perf. Difp. Meth. 54. t. 4. f. 3 and t. 1. f. 3." (T. n. 2167; Hall. Hist. v. 3. 115. t. 48. f. 5.)—Stalked, cluftered, of a shining blue; flarks combined, spreading at the base, shorter than the heads.—Not rare on the rotten barks of trees in autumn. There is a smaller variety, of a red or rufi affeet. Perfoon is remarkably incorrect in his citation of Haller, (n. 2162. t. 40. f. 2.)

3. T. falkias. Perf. Obs. Mycol. falc. t. 59. t. 3. f. 4. 5. ("Clathrus falcatus, reticulato deciduo; Schmid. ic. t. 33. f. 1.—18." Spharocarpus fcooides; Bull. Fung. v. 1. 130. t. 147. f. 33; excluding the synonomies. Mucor minutus; Jacq. Aurif. t. 295.)—Simple, stalked; at firft red; then of a dull grey. Base of the head, and top of the flalk, plafted.—Found in autumn, upon soft rotten wood. The head when young is bright red, and roundifh; by age it beomes pear-shaped, on a flalk about its own length, and altogether of a dirty flate-colour, cracking and expanding at the top into a kind of cup. Jacquin's figure reprefents the young, Bulliard's the old, plant.

4. T. elevata. Perf. Obs. Mycol. falc. 2. 34. "Simple, yellow and shining. Stalk rugged, elongated, tapering downwards."—Found on the trunks of trees, either folitary, or compoſing dense tufts. It is among the larger species. The flalk is slender, of a reddih-yellow. We have seen no specimen nor figure.

5. T. nigripes. Perf. n. 5. (T. pyriformis; Perf. Obs. Mycol. falc. 2. 33. Bull. Fung. v. 1. 129. t. 417. f. 2.)—Rather fatterted. Head pear-shaped, yellowifh, longer than the blackifh flalk.—On the trunks of trees, but rare. The head is obovate and obtufe. Stalk half a line long, black, flanding on a manifest membranous base common to many individuals. Perfoon remarks, that the flalk in Bulliard's plate is thicker than his, besides being of the fame colour as the head. He mentions also a smaller more common variety, verging towards an olive hue, and more brittle than the above-difcribed. The following, originally thought diftinft, are now reduced by Perfoon to the fpecies before us.


8. T. vulgaris. Ibid. 32. (T. turbinata; Sowerb. Fung. t. 83?)—Sattered. Head roundifh, somewhat turbinate. Stalk blackifh, extremely short; sometimes entirely wanting.—Frequent after heavy rains in autumn, upon roten beech-trees; appearing when young in the form of white granulations, turning afterwards of the colour of yellow ochre, and more opaque. The flalk in an early flate is hardly difcernible. Mr. Sowerby's synonym seems to us to belong to the following, as he himself suppozed.

in autumn, in woods, upon rotten wood, mosses, &c.—It forms dense tufts, each plant the size of garden poppy-feed, and burbling in an irregularly circular manner, near the top. This is one of our most frequent species.

7. T. alvacea. *Perf. Obf. Mycol. fæc. 1. 62.* —Scattered, sccfelle, roundish, or obovate, abrupt at the bafe, olive-coloured. Internal hairs compaçt, yellowish. —Found rarely on the stems of trees. Heads globular, or hemispherical, becoming by mutual preflure, when crowded, oblong, or somewhat cylindrical. Perfo/on is doubtfull whether this be a distinct species. We have seen no specimeen.

Sect. 2. Head round, or kidney-floated.

perdon favogineum ; Batfch Elench. Fung. 257. t. 173.”) —Crowded, sccfelle, globular, of a shining yellow or cinnamon-colour. —Found in autumn, about the decaying trunks of fir-trees, as well as on beeches. In the former case it is more opaque; in the latter more bright and shining. The head is occasionally a little turbinate.

9. T. varia. *Perf. Obf. Mycol. fæc. 2. 32.* (Lyco-
gala luteum, omnium minimum, reniforme; Mich. Nov. Gen. 216. t. 65. f. 4.) —Rather crowded, yellowish, partly deflexed. Head kidney-shaped, roundish, or somewhat ob-
glong. —Grows on rotten trees in autumn. Found by MichieL in the celebrated gardens of Boboli, behind the palace Patti, at Florence. He represents it as forming globular masses, the size of a large pea, each plant smaller than poppy-feed. The lateral ones appear to be deflexed, or forced outward, by those in the middle.

Sect. 3. Receptacle elongated, thread-shaped, creeping, simple, or interbranching like veins.

Seripula ; Scop. Carn. 493. t. 65.) —Thread-shaped, unbranched, very long, somewhat zigzag, yellow.—On the trunks of trees in Camiolâ, near the roots. *Scopoli.* This is represented as a smooth yellowish thread, creeping like a *Serpula*, or Worm-shell, and resembling a small animal in its tinefline. It bursts and discharges, from every part, tufts of fine hairs beprinkled with yellow powder. *Scopoli.* T. fœn-
доровides, Villars Dauph. v. 3. 1661, is thought by Perfoon to be a variety of this. But the author's description of "from three to five little oblong, cylindrical, worm-like bodies, whose yellowish internal woolly substance soon confounds them in one woolly mass," indicates rather some of the former lections, or perhaps an *Albinus.*

12. f. 1.* (Lycoperdon lumbriæcale ; Bafch Elench.
Fung. 259. t. 30. f. 174.) —Threaded, branched, reticulated, yellow.—Found in autumn on the trunks and mossy bark of trees, but very rare. We have never heard of this or the preceding in Britain. The present species is described as spreading to the extent of an inch, confliving of a yellow net-work, burbling here and there, and protruding tufts of yellow hairs, enveloping a powder, or seeds, of the same colour.

It will readily be perceived that the species of this genus, however curious, can, as yet, be imperfectly defined; nor are we certain how far the *Acrinia, Stemonitis, Crip-
erias,* &c. of Perfoon are entitled to rank as genereally distinct.

TRICHIASIS, (derived from τρίχη, the hair,) in Surgery, sometimes also named *entreponum,* denotes a faulty inclination of the eye-lashes inwards against the globe of the eye. According to Scarpa, the disease presents itself under two distinct forms: the first is, where the cilia are turned inwards, without the natural position and direction of the tarsus being at all changed; the second consists in a morbid inclination of the tarsus, and consequently of the eye-lid towards the half of the eye.

The first form of this disease is very rare, nor has it come under the observation of the experienced Scarpa more than once; and in this instance, only some of the hairs had changed their direction. The second species or form of trichiasis, or that which consists in a folding inwards of the tarsus and cilia at the same time, is that which is commonly met with in practice. This may be either complete, affecting the whole of the tarsus; or incomplete, occupying only a certain portion of the edge of the eye-lid, and most frequently near the external angle of the eye. Sometimes the disease is confined to one eye-lid; at other times it affects both; and occasionally the patient is afflicted with it in both eyes.

To these two species of trichiasis, some writers have added a third, which they call *dystichiasis,* and which they suppose to be produced by a double and unusual row of hairs. But this third species, as Scarpa observes, is only imaginary, and the reason of such subdvision seems to have arisen from not recollecting what was long ago remarked by Winlow and Albinus, that although the roots of the cilia appear to be diphosed in one line only, they nevertheless form two, three, and in the upper eye-lid even four rows of hairs, unequally situated, and as it were confused. Whenever, therefore, in consequence of diphase, a certain number of hairs are separated from each other in a contrary direction and disorderly manner, the eye-lid will appear to be composed of a new and unusual row of them, while, in fact, there has been nothing, either with respect to their number or natural implantation.

It is not an easy matter to determine precisely, says Scarpa, what are the causes which sometimes make a few of the hairs deviate from their natural direction, while the tarsus continues in its right position. They are commonly referred to cicatrices in consequence of previous ulceration, whereby the cilia fall off, and those which are growing are hindered from taking their proper direction. There must, however, be other causes sometimes concerned; for in the case seen by professor Scarpa, two or three hairs were turned inwards against the eye-ball, although there had been no preceding ulceration, nor cicatrices of any part of the tarsus. Indeed Scarpa is inclined to believe, that the small ulcers and fears which are sometimes formed upon the internal margin of the tarsus, are more likely to produce the second form of the disease, or the inversion of the edge of the eye-
lid, and consequently of the cilia towards the globe of the eye. As these ulcers, when neglected, destroy the internal membrane of the eye-lid, and near the tarsus, it necessarily follows, that in proportion as they heal and diminish, they draw along with them and turn inwards the tarsus, and hairs inserted into it. And since these little ulcerations do not always occupy the whole extent of the internal margin of the eye-lid, but are sometimes confined to a few lines, in the middle or extremity, near the external angle of the eye-lid; so after the cicatrices are formed, the whole of the hairs are not invariably turned inwards, but only a certain number of them, which correspond to the extent of the ulcers previously situated along the internal edge of the tarsus. Indeed, in every case of imperfect trichiasis from a cicatrix of the inner margin of the eye-lid, the tarsus and cilia are every where in their natural situation, except opposite the part where the ulcers formerly existed. Also, if the eye-lid be reverted, its internal membrane, near that part of the margin corre-
responding to the seat of the trichiasis, will be found pale, rigid, and hardened, the inversion of its cartilagineous border and of the cilia being plainly a consequence of the contraction of the cicatizert point.
TRICHIASIS.

Besides these causes, there are others which may produce the complaint. Chronic ophthalmies of long continuance sometimes have this injurious effect, in consequence of the skin of the eye-lid being kept for a long time in a state of irritation and adhesion, terminating with the formation of trichiasis. The cartilaginous margin of the eye-lid then loses the proper support of the integuments, inclining towards the eye-ball, and afterwards turns inwards, drawing the eye-lashes along with it in the same improper direction. Long-continued puriform discharges from the ciliary glands, likewise spoil the shape and coherence of the cartilage of the eye-lid, and therefore not unfrequently occasion trichiasis. Scarpia doubts, whether a papilomatous contraction of the orbicularis palpebrarum muscle can ever be a cause of the disease, notwithstanding what Mr. B. Bell has asserted upon the subject.

The annoyance which must necessarily result from the hairs perpetually pressing upon the cornea and white of the eye, may be easily imagined, even by those who have little acquaintance with surgery. The evil is rendered still greater, by the hairs which are turned inwards becoming much longer and thicker than those which retain their natural direction. And although the trichiasis be confined to one eye, both the eyes usually suffer from the effects of the disease. Indeed, generally the eye on the sound side cannot be moved without occasioning pain in that which is exposed to the irritation and friction of the injected hairs. In almost all instances, both the eyes are very irritable, and incapable of bearing the light. As, in cases of incomplete trichiasis, the patient retains some little power of opening the eye-lids for the purpose of seeing, and that most frequently towards the internal angle of the eye, the head and neck are often inclined in an awkward manner, so that in children a distortion of the neck and shoulders is at last produced, which cannot be rectified without difficulty, even after the trichiasis is cured. Unfortunately, also, children are impatient of the uneasiness arising from the injected hairs, and, therefore, are continually rubbing the eye-lids, which act very much increases all the ill effects of the complaint, such as the varicose chronic ophthalmalmy, opacity, and ulceration of the cornea.

The cure of the second species of trichiasis, or that which is commonly met with in practice, is accomplished by artificially everting the eyelids, and fixing it permanently in its natural position, together with the relaxation of the conjunctiva, which do grievously irritate and press against the globe of the eye. According to professor Scarpia, this indication is perfectly fulfilled by the excision of a piece of the skin close to the edge of the eye-lid, of such a breadth and extent, that when the cicatrix is formed, the tarsus and margin of the eye-lid may be turned outwards, and sufficiently separated from the eye-ball, the cicatrix of the integuments affording a point of support fully adequate to keeping the parts in their natural position and direction. Scarpia believes that there are now very few modern surgeons, who, with a view to the radical cure of this disease, place any confidence either in plucking out the inverted eye-lashes, bending them outwards, and retaining them so by means of adhesive plaster, or in plucking them out and destroying their roots with cautick: much less in extirpating the edge of the eye-lid along with the hairs, or dividing the orbicularis muscle on the internal surface of the eye-lid, under an idea that the disease is sometimes produced by a papilomatous contraction of it.

The following is the mode of proceeding recommended by Scarpia, the patient being seated in a chair, if an adult, or, if a child, laid upon a table, with the head raised, and firmly held by an assistant, who must stand behind the patient, the surgeon is to pull outward, with the end of a probe, the hairs which irritate the eye. Then, with a pair of deflecting forceps, or the ends of his fore-finger and thumb, (which answer equally well, and, in many cases, much better than forceps,) the operator should lift up a fold of the skin of the affected eye-lid, taking great care that the piece which is taken hold of, corresponds exactly to the middle of the whole extent of the trichiasis; for, as we have already explained, sometimes the whole, sometimes a half, and, in other instances, only a third of the extent of the tarsus is inverted. The surgeon, with his left-hand, must raise the fold of the skin, more or less, according as the relaxation of the integuments, and the inversion of the tarsus, are more or less confiderable. The reason of this is exceedingly evident, viz., that the greater the quantity of skin which is raised, the greater is the quantity which will be cut away. Supposing the patient to be an adult, as soon as the fold of skin has been raised in a certain degree, the surgeon must request him to open his eye, and, if, in this act, the tarsus and eye-lashes refuse their natural place and direction, the portion of skin already raised will be sufficient for the purpose. We must trust to our own judgment with regard to children, as they seldom let us have recourse to the mode of discrimination just related.

When the integuments are elevated by means of a pair of deflecting forceps, and care is taken to lay hold of the skin precisely at the middle point of the whole extent of the trichiasis, it necessarily follows, that the confluent pile of the skin will form an oval, and that the greatest width of the wound will correspond exactly, or nearly so, to the middle of the eye-lid, and its narrowest parts to the angles, or commissures of the same. This contributes very materially to make the cicatrix correspond to the natural fold of the eye-lid, and hinder the origin of a diseased or any opposite nature to the one about to be remedied, towards the angles of the eye, viz., an eversion of the commissures of the eye-lids. See ECTROPION.

Besides this caution relative to the situation and figure of the fold of the integuments to be cut off, the surgeon must be careful that the division of the skin be made very near the inverted tarsus. Were this circumstance neglected, the operator might have the mortification of finding, after the wound is healed, that although the eye-lid is shortened, on the whole, from the eye-brow to the place of the recision, yet it is not equally shortened, in all cases, on the side of the edge of the eye-lid and the cicatrix of the skin. Hence the tarsus would remain inverted as before, or not be sufficiently turned outward to keep the eye-lashes from rubbing against the eye. This inconvenience would oblige the patient to submit to a second operation, done lower down than the first.

Things being thus arranged, the surgeon, holding up the fold of skin by means of the forceps in his left-hand, is with a pair of probe-pointed, sharp curved scissors, to cut off the whole of the duplicate, being first sure that one of the blades of the instrument is applied close to the edge of the eye-lid. If both eye-lids should be affected, the same operation must immediately be done upon both of them, with such cautions, and in such proportion, as the extent of the disease, and the degree of inervation of each eye-lid may require.

Scarpia next differentiates us from employing any future to unite the wound, and represents, that it will be sufficient to keep the eye-brow as much downward as possible, if the operation has been done on the upper eye-lid, or, if on the lower, to support it against the inferior arch of the orbit, by pressing it from below upwards, so as to keep the edges of the wound from becoming separated. Then the lips of the
the wound are to be put into exact contact, by means of strips of adhesive plaster, which should extend from the superior arch of the orbit to the zygoma, and the support of the wound in apposition will be still more securely effected by placing two compresse, one on the eye-brow, and another on the zygoma, together with a bandage.

On taking off the first dressings, the third day after the operation, the surgeon will find that the patient can open his eye with ease, and that the inverted tarbus and eye-lashes have resumed their natural position and direction.

In the partial or incomplete trichiasis, or that which only occupies a half, or a third of the whole length of the tarbus, and in subjects who have had the skin of the eye-lids very loose, Scarpa has often had the pleasure of finding the wound perfectly united on removing the first dressing.

When, however, only a part of the incision has healed, while the rest seems disposed to heal by suppuration and granulation, the surgeon covers the wound with a small piece of lint, spread with the unguentum ceruse, and if the fore should become flabby, it must be touched, every now and then, with the argentum nitratum, until the cure is perfected, which commonly happens in the course of a fortnight.

Thus far, Scarpa's observations have related to the radical cure of the second, or most frequent kind of trichiasis.

With regard to the first form of this disease, or that in which the eye-lashes project against the eye-ball, without the natural position of the tarbus being at all altered (a case which is fortunately very rare), the accomplishment of a cure is very difficult, since, as we have already explained, neither the pulling out of the hairs, nor burning the situation of their roots, are means at all to be depended upon for producing a complete cure of the disorder; and since turning the tarbus out of its natural position would make the patient liable to an irrecoverable flowing of the tears over the cheek, attended with a chronic thickening of the lining of the eye-lid.

The treatment of this species of trichiasis is still imperfectly understood, and seems to claim more attention than appears hitherto to have been paid to it. In the instance of this form of the disease which Scarpa met with, only two or three of the eye-lashes inclined against the eye-ball. He found, on turning the eye-lid a little out, opposite to the situation of the faulty hairs, that he could not, indeed, completely put them in their natural position; but he saw that he could thus remove them so far from the cornea, that they would not rub against it, without altering the position of the eye-lids so much as to occasion a perpetual discharge of the tears over the cheek. And, as in the patient alluded to, the skin about the eye-lid was very tense, Scarpa deviated from the above rule, by making an incision with the back of a lancet, near the tarbus, three lines long, and he took away a small piece of skin of the same length; but very little more than one line broad. When the cut healed, the operation was found to answer as well as the nature of the cafe would allow, though the cure was not complete, nor would it have obviated all inconveniences in cases of greater extent.

The trichiasis being cured, something more always remains to be done, for the purpose of correcting the cause of the disease, as well as curing the disorder of the eye, occasioned by the previous friction and irritation of the inverted hairs. The usual indications are, to restore the tone of the vessels of the conjunctivae, to leffen the swollen Meibomian glands, and to remove any cloudiness of the cornea.

Two new methods of performing the operation, for the cure of trichiasis, have been recently proposed by Dr. Crampton and Mr. Saunders.

The following is the account which Dr. Crampton gives of his plan, which he tried in one instance with complete success. 46 Let the eye-lid be well turned outwards by an affilant; let the operator then with a lancet divide the broad margin of the tarbus completely through, by two perpendicular incisions, one on each side of the inverted hair or hairs; let him then, by a transverse section of the conjunctiva of the eye-lid, unite the extremities of the perpendicular incisions. The portion of cartilage contained within the incisions, can then, if inverted, with ease be restored to its original situation, and retained there by small strips of adhesive plaster, or perhaps, what is better, by a supferrium palpebrae, adapted to the length of the portion of the tarbus which it is intended to sustain, should one or two hairs be displaced without inversion of the tarbus." 47 Eflay on the Entropion, p. 55.

Mr. Saunders entertained a favourable opinion of Dr. Crampton's operation for the cure of the disease in its early stage; but he contended, such a vicious bending of the tarbus inward was not the consequence of repeated obliquely, attended with ulceration of the conjunctiva and lining of the eye-lid; and that every endeavour to rectify the wrong position of the tarbus, and restore its original direction, would be fruitless. Hence, he believed, that its excision was decidedly indicated; an operation which is said to be followed by no pain or uneasiness, and which is sure in its effect. No particular shortening of the eye-lid ensues; the deformity is materially lefiened; and unless the cornea be already too opaque, perfect vision is re-established.

Mr. Saunders directs a piece of thin horn, or a plate of silver, having a curvature corresponding to that of the eye-lid, to be introduced under this part, with its concavity towards the eye-ball. On this instrument the eye-lid is to be stretched. An incision is to be made through the integuments and orbicularis palpebrarum, down to the tarbus, immediately behind the roots of the cilia. The cut should extend from the punctum lacrymale to the external angle. The exterior surface of the tarbus is then to be dissected, until the orbital margin is exposed, when the conjunctiva is to be cut through directly by the side of the tarbus, which must now be deflagged at each extremity. The punctum lacrymale must be left uninjured. The operation is described as being exceedingly simple, and if any embarrassment arises, it is from the hemorrhage of the ciliary artery, the blood sometimes obscuring the punctum lacrymale, just when the operator is about to divide the tarbus by the side of it. No dressings are required, it being merely necessary to keep the eye covered for a few days. The skin will continue to be elevated, just as the perfect eye-lid was; and though less completely, yet enough to leave the pupil clear, when the eye is moderately directed upward. In all the cases in which Mr. Saunders operated, a fungus grew from the wound. He recommends the recurrence to be destroyed with cautery, or the knife.

Respecting this operation, we shall merely observe, that it is more severe than that advised by professor Scarpa, and must leave more disfigurement. Unles$, therefore, the latter method prove ineffectual, we see no reason for abandoning it.

Inversion of the lower eye-lid is much less common than that of the upper one. The late Mr. Saunders never saw this disease arise from the same causes which induce it in the upper eye-lid, though he acknowledges the possibility of such a case. However, he met with several instances of the affection, in consequence of encysted tumours, which,
as they increased, carried the orbital edge of the tarsus outwards, and, in the same proportion, inclined the ciliary edge towards the globe of the eye.

An inversion of the inferior palpebra is sometimes produced by inflammation and swelling of that part of the conjunctiva which connects the eye-lid with the eye-ball. In cases of ophthalmia, this membrane often forms between the latter parts of the infer. fold, which is situated just on the inside of the orbital edge of the tarsus, and pushes it outward; while the contraction of the orbicularis muscle turns the ciliary edge inward, and inclines it between the swelling of the conjunctiva and the eye. In this particular case, Mr. Saunders affirms, that replacing the eye-lid in the early stage of the disease, and maintaining it so, until the ophthalmia has been lefled by proper means, will be found effectual. But when the conjunctiva is much thickened and indurated, Mr. Saunders recommends cutting such dis ease part of it away, and the application of compreges to keep the orbital margin of the tarsus inward.

Albinus has recorded a species of trichialis, which originated from the growth and inversion of one of the hairs upon the cannae lacrymatis. The plan of relief consisted in plucking out the irritating hair; but, as Scarpa observes, it should have been mentioned whether the hair grew again, and in what direction. Scarpa on Diceses of the Eyes, 4. Saunders on Diceses of the Eyes, chap. 3. Cramp ton on Entropion. S. Cooper's Pract. of Surgery, p. 206. edit. 3.

TRICHIDES, in Ickbyology, a name used by the ancients for a fith of the harengiform kind, probably the pilchard, which they called alfo sardines and sardella.

TRICHILIA, in Botany, a name apparently originating with Browne, and which De Theis has derived from τρίς, three-fold, no otherwise applicable to this fine genus, than as the capillus has three cells and three valves, very constrictive in Sloane's figure of the original species, which probably the author had under his eye. Professor Martyr leaves this name unexplained.—Browne Jam. 278. Linn. Gen. 211. Schreb. 285. Willd. Sp. Pl. v. 2. 552. Mart. Mill. Dict. v. 4. Ait. Epit. 275. Swartz Ind. Occ. 730. Juft. 265. Poiret in Lamarck Dict. v. 8. 56. Gaertn. t. 95. (Portedia ; Cavan. Diff. 365.)—Clafs and order, Decandria Monogyne. Nat. Ord. Trilabiate, Linn. Melis, Juff.

Gen. Ch. Cal. Perianth inferior, of one leaf, bell-shaped, short, with five small teeth. Cor. Petals five, lanceolate, spreading. Nectary cylindrical or conical, tubular, with top teeth, shorter than the petals, formed, as it were, out of the ten combined filaments. Stam. Filaments none; anthers ten, erect, sessile on the margin of the nectary, and rising above it, deciduous. Pil. Germin superior, obovate, obscurely three-lobed; style short; stigma capitate, with three notches. Peric. Capsule roundish, slightly triangular, of three cells, and three valves at length reflexed, with partitions from the centre of each. Seeds solitary, pendulous, ovate, with a pulpy coat, or tunic.


Obt. The parts of the flower vary, or differ in different species, from five and ten to four and eight. The cells and valves of the capsule are, in some instances, but two, as in the Portia of Cavanilles. The seeds have truly a more or less pulpy coat, though not a distinct tunic. It is remarkable that Cavanilles has not admitted Trichilia into his Differtations on Monadelphiaus Plants, where this genus is as much entitled to a place as any others of Juffieu's Melis. Probably he was not furnifhed with any materials to describe or delineate the species. The gardens certainly could not supply him.

1. T. birta. Green-flowered Trichilia. Linn. Sp. Pl. 550. Willd. n. 1. Swartz Obs. 171. (T. n. 1; Browne Jam. 278.) Pruno forte affinis arbor, folio alato, flore herbaceo pentapetalato racemo; Sloane Jam. v. 2. 128. t. 220. f. 1.)—Leaves pinnate, of about feven elliptical, pointed, smooth leaflets. Clusters denfe, names confemed.——Native of Jamaica, in the meadows about Kingston and other places, on a dry gravelly soil. Browne calls it a fbrub; Sloane a tree, about twenty feet high, with a smooth greyish bark, and hanging out at the height of seven feet, or more, several declining branches. The leaves are scattered, not numerous, pinate with an odd one; the leaflets opposite, an inch and half long, uniform, smooth, entire, dark green, on short partial flakks. Flowers greenish-white with purple anthers, in auxiliary compound clusters. Browne lays the feeds of all the species are enveloped in a scarlet waxy substance. Linnaus, and perhaps Browne, confounded this with the following. We do not find much reafon for the specific name birta, which seems more applicable to the following.

2. T. spondiodes. White-flowered Trichilia. Jacq. Amel. 128. Hort. Schoenbr. v. 1. 54. t. 102. Willd. n. 2. Swartz Ind. Occ. 730. (Euonymus caudice non ramosof, folio alato, fructu rotundo triprycreo; Sloane Jam. v. 2. 129. t. 210. f. 2. 3.)—Leaves pinnate, of about fifteen ovato-lanceolate, pointed leaflets; downy at the edges. Clusters rather lax. Stamens distinct.——Native of mountainous woods in Jamaica and Hufipaniola, flowering in the spring. Swartz. In the flore at Schoenbrun, according to Jacquin, it blossomed in September and October.—The stem is fifteen or twenty feet high, slightly branched at the top. Leaves a foot long; their leaflets much more numerous than the former, ovato-lanceolate, not elliptical, more or less hairy, especially at the edges. Clusters several, leafy, crowded than in the foregoing. Flowers yellowish or greenish-white. Stamens not united, though clofely converging into a cylinder, or cone. Capsule roundish, downy, the fize of a small cherry. We should conceive this rather to be Browne's plant, which he terms subhirsuta, but we have no specime to determine the point.

3. T. emetica. Emetic Arabian Trichilia. Vahl Symb. v. 3. 31. Willd. n. 3. (Elecja; Forh. Ægypt.-Arab. 125.)—Armer leaves pinnate; leaflets elliptical, downy beneath, the outer ones largcr;—Frequent on the mountains of Yemen. The Arabs call this tree Roka. The flowers resemble orange-blossoms. The fruits, mixed with perfumes, is used by the Arabian women for washing their hair. The ripe feed are made into an ointment with oil of Sufumam, against the itch. Forkfull found mention of the fruit, in an Arabic book, as an emetic, by the name of Djuws elkaw, whence he took his barbarous generic name above quoted. He describes this species as a large tree, with alternate downy branches. Leaves alternate, pinnate with an odd one, of nine oval-oblong, flaked leaflets, the lower ones two inches in length, the upper or outer ones three; all smooth above, but, according to Vahl, downy beneath; their common flakc, about a fpan long, is also downy. Stipulas none. Stalks axillary, corymbofally pinched. Flowers twice the size of the latt, greenish-yellow. Stamens united half way up. Capsule obovate, downy, an inch long, with tw o feeds in each cell. Forkfull, Vahl.

4. T. glabra. Smooth Havanannah Trichilia. Linn. Syfl. Nat. ed. 12. v. 2. 294. Willd. n. 4. (T. havanensis; Jacq. Amel. 129. t. 175. f. 38.)—Leaves pinnate; leaflets obovate, obutte, smooth, tapering at the base; the outer-
TRICHILIA.

molt gradually large.—Native of mountainous woods about the
Havannah. A lofty, branched, spreading tree, exhauling a
tetid, very disagreeable scent. Leaves of from five to seven
smothing leaves, nearly sefide; on a slightly winged flalk, about five inches long. Clusters axillary, very short.
Capsules globose, greenish. Jacquin.

Willd. n. 5. (Porteria ovata; Can. Diff. 369, t. 215.)
—Leaves pinnate; leaves smooth, membranous, elliptic-oblance. Clusters axillary, simple, somewhat aggregate. Flowers four-cleft, endemic. Capsules of two valves only.
—Native of bushy places, in the mountainous parts of His-
paniola, flowering in February and March. A tree, whose
trunk is from sixteen to fifteen feet high, branched, smothing, with nearly horizontal, smothing, round, subdived branches. Leaves large and handomely, thin, reticulated with innumer-
able veins. Leaves from two to five inches long, the outer-
molt gradually large, the partial flalk of the terminal one
not longer than the rest. Clusters about an inch long, usu-
ally two or three together, somewhat downy, or silky.
Flowers whitish. Calyx and petals downy. Nectary, or eight
combined flaments, externally smothing, hairy within the
fummel. Capsule roundish, of two cells and two valves, with
two seeds in each cell, one above the other, invexed with a
leaflet vicid pulp.

6. T. majestic. Mulky Trichilia, or Mulk-wood. Swartz
Ind. Occ. 735. Willd. n. 6.—Leaves alternately pinnate;
leaflets ovate, pointed, smothing. Clusters axillary, compound.
Flowers four or five-cleft, monopetalous. Nectary undivided.
Capsule with one seed.—Found in old woods of the
northern part of Jamaica, flowering in May. The inhabi-
tants know this tree by the name of Mulk-wood, because every
part, the bark, bruised leaves, flowers, and fruit, smell powerfully of mulk. The pulp of the seed has a sweet taste.
The trunk is twenty feet high, or more. Leaves alternate,
veiny; shining on the upper side; on very short partial
flalks; their common flalk hearty. Clusters solitaiy, erect, of
many small whitish flowers. Calyx downy. Corolla in
four or five deep ovate figures, with a short tube. Nectary
scarcely longer than the tube of the corolla, undivided, bear-
ing rarely more than eight anthers, though the corolla is
generally five-cleft. Capsule down, of three or four valves.
Seeds solitary, like a drop, with a brittle skin, and a juicy rich
scarlet pul, including a hard oblong kernel, separable into
two parts.

t. 637. Ait. Epit. 375. —Leaves oppositely pinnate; leaflets
effixate-lanceolate, pointed, smothing. Clusters axi-
illary, compound, denfe. Petals four. Nectary in ten
double-pointed figures, with a slightly flaked anther be-
tween the points.—Native of the West Indies? It was lent
by Dr. A. Anderfon, from the botanic garden at St. Vin-
cent's to Sir Abraham Humfe, about the year 1801, and
flowered in his house at Wormleyburn, in 1810. The plant
has a mulky feent, but appears otherwise different from the
falf. The leaflets are even or nine; their common flalk
amothing, except when very young. Flowers pale green,
nu,vous, in short, denfe, compound Clusters. We find them, as
described in Mr. Andrew's work, with four broad-odate
separate petals, though the nectary conflits of ten flat fig-
ments, united half way up, deeply forked at the fimnent, and
each bearing from the fork an odace, inflexed, two-celled
anther, on a very short flender flalk, or filamen. Nothing
is known of the fruit.

Forl. Prodr. 53. Willd. n. 7.—Leaves pinnate; leaflets
obovate. Clusters axillary, compound.” Gathered by
Forster in New Zeeland. His specific character, all we
know of the plant, is not sufficient to distinguish it from our
fourth species, T. glabris, though the two species are prob-
ably widely different.

Willd. n. 8.—Leaves pinnate; leaflets lanceolate, acute.
Clusters axillary, repeatedly compound.” —Native of the
island of Namoka.

10. T. glandulufa. Glandular-wine Trichilia.—Leaves
pinnate; leaflets five or seven, elliptic-lanceolate, bluntly
pointed, with axillary hairs on their veins beneath. Petals
four. Nectary undivided. Stigma depressed.—Native of
New South Wales, near Port Jackson. A specimen from
thence was communicated to us by Sir Joseph Banks, under
the name of T. oitandra of Solander, which not being pub-
lished, we presume to change, as the oitandra species of
this genus are numerous, though this only was then known
to the great botanists who first discovered it. The leaves
agree nearly with T. heterophylla, hereafter described, in fize
and shape, but are all pinnate, and remarkable for axillary
glands, bearing tufts of hairs, along the mid-rib of each leaf-
let beneath, as in the Laurilius, of which we perceive no indica-
tions in any other species, except perhaps the firft. Clusters
axillary, solitary, flalked, as inch or two in length, fimple,
of very few flowers. Calyx four-cleft, minutely fringed. Petals
four. Nectary undivided. Anthers eight, fesile. Stigma
capitate, broad. Capsule triangular, deprefled, with three
deflexed lobes. Seeds in a red, pulpy, elatiic tunic.

(Proteria mucronata; Can. Diff. 370, t. 216.)—Leaves
pinnate or ternate; leaflets elliptic-ovate, pointed. Clus-
ters fimple, axillary and terminal. Petals four. Nectary
undivided. Anthers eight. Stigma club-shaped.—Gathered
by Commenfon in Madagafcar. Leaves smooth; of three or
five flalked, moiily elliptical, taper-pointed leaves, near two
inches long. Clusters in inch long, folitary or in pairs.
Flowers fmall, four-cleft. Fruit unknown.

12. T. trifolium. Three-leaved Weight Indian Trichilia.
Vahl Symb. v. 1. 31. (T. quz Haelfia Loeblingi; Lowh.
B. 188.)—Leaves ternate; leaflets obovate, polited, ob-
tufe; tapering at the base; the odd one much the largest.
—Native of South America, and fome of the Wetr Indian
Iflands, flowering in April and May. A tree fifteen feet high,
exhaling from every part a difagreeable, though not power-
ful, odour. Leaves alternate, flalked; their two opposite
leaflets an inch long, the odd one two inches; all very ob-
tufe, tapering greatly at the base, without any partial flalks.
Clusters axillary, very short, of about fix small, whitith, five-
cleft flowers. Capsule green, with brownish dots, globofe,
of three valves. Seeds with a scarlet skin. The negro
women are faid to procure abortion by a décolation of the roots.
Jacquin.

Vahl Symb. v. 1. 31. Willd. n. 11. (Melia Koepfe; 
Burin. Ind. 101, excludin Plinteket's synonym.)—Leaves
ternate; leaflets ovate, acute; their ribs hairy beneath.—
Native of Java. Branches downy at the extremity. Leaves
flalked; leaflets on short flalks, entire, two inches long, and
we presume all three about equal in fize; common flalk
downy, the length of the leaflets, shorter than the axillary
upright flower-flalks. Flowers in short dense panicles, with
a lanceolate bracte at the bafe of each. Calyx and corolla
visous.

(“Turnee virdens; Helianus in Stockh. Transf. 1788, 294.
t. 10, f. 1.” We fupject an error in the page.)—Leaves
simple,

Eff. Ch. Calyx in five deep linear segments. Staminæ connected at their base, without teeth. Anthers of two cells. Stigma capitatum. Capsule without valves, single-seeded, included in the converging base of the calyx, whose segments are spreading and feathery.

The species of this genus are herbaceous, generally perennial, with alternate leaves. Flowers terminal, capitated or spicate, each accompanied by three membranaceous shining bracteas. The hairs of the calyx, at first close, subsequently become extended, and give the segments a feathery aspect. Trichinium is truly, as its learned author observes, very closely related to Pilosus; see that article. We should indeed feel no scruple in considering them one genus. Perhaps they ought strictly to be referred to the class Monadelphus, or at least they, and their Limnan allies Cmepbrema, Athyriantes, Guloa, &c. should be indicated at the head of that class, for the convenience of young botanists. Why the latter were not all placed there by the author of the sexual system, to the great relief of his fifth clasf, can only be attributed to his peculiar idea of the structure of their flowers. He calls a nectarium, what Mr. Brown efeatues the united base of their filamentæ; but we believe an enlarged consideration of the whole tribe will justify the latter opininon.


3. T. dilutus.—Leaves linear, very narrow, smooth as well as the branches. Spike elongated, rather lax.—From the same country.

4. T. patulatuum.—Radical leaves obovato-opatulate, flat, smooth. Spike cylindrical.—Gathered by Mr. Brown in Van Diemen's island.

5. T. macrocephalum.—Stem-leaves lanceolate, wavy, smooth as well as the angular branches. Spike oblong, with a woolly flax.—Native of the south coast of New Holland.

6. T. incanum.—Leaves lanceolate, hoary and downy as well as the round branches. Spikes nearly ovate, lateral as well as terminal.—Gathered by M. Baudin, on the west coast of New Holland.

We have seen no specimens of this genus, any more than of Pilosus above-mentioned.

TRICHIRI, in Geography, a small island in the Grecian Archipelago; 7 miles E. of Spécia.

TRICHISMIOS, from ἔχις, the hair, in Surgery, a capillary fissure, or fracture of the skull, so called from its being so fine as to resemble a hair put upon the bone.

TRICHURUS, in Ichthyology, a genus of the order of Apodes; the characters of which are, that the head is extended, with lateral opercula or gill-covers; that the teeth are eniform, and semi-fagitated at the apex or tips; that it has seven branchiostegous or gill-membrane rays; that the body is compressed and eniform, and the tail tuberculate, without any fin; whence it is called leprous, and in English fish-tail. There are two Species.

Lepurus or Argenteus; Silvery Trichurus. With the lower jaw longer than the upper; and equally distinguished by the singularity of its shape, and brilliancy of its colour; the body very compressed, tapering towards the extremity, and terminating in a fine point: the whole body, except the fins, has a bright silver-colour; the head narrow and the mouth wide; the lateral line of a gold-colour, commencing at the gills and continued to the tip of the tail; the dorsal fin moderately wide, transparent, and of a yellowish tinge, commencing almost immediately behind the head, and terminating near the end of the tail in a mere membrane, the other parts being brightly radiated; the pectoral fins small and of an oval shape; without any direct vent-fin, but having a series of very small naked spines or rays, about 110 in number, continued from the vent, which is situated about the middle of the body, to nearly the tip of the tail. Its general length is from two to three feet: it is said to be very voracious, swins with rapidity, and in the pursuit of its prey sometimes leaps into small vessels, which happen to be falling by it. It is a native of the rivers and larger lakes of South America, and is considered as an eatable fish: it is also found in some parts of India and in China.

Indicus, or Eleutherus; Brown Trichurus. With jaws of equal length; nearly equal in size to the preceding, but different in the configuration of the jaws, which are of equal length, and in the form of its teeth, which are very minute; the tail less f slander and sharp, and the colour of the whole fish pale brown, variegated with spots of a deeper cast: a native of the Indian seas, and possessing a degree of electrical power.


Gen. Ch. Cal. Perianth inferior, of one leaf, in four or five deep, ovate, acute, spreading, permanent segments. Cor. none. Stam. Filamentæ numerous (sixty or seventy), capillary, longer than the calyx, inserted into the receptacle; anthers small, roundish. Pyl. Germin simple, superior, ovate, villous; stigmas two, thread-shaped, erect, much longer than the flaments, divided at the summit; frigmas obtuse. Peric. Capsule elliptical, with four angles, one cell, and four valves,
valves, clothed all over with numerous rigid, projecting deciduous bristles. *Seeds* numerous, small, inserted into an ovate-oblong, central, unconnected receptacle, and enveloped in a villose membrane.

Eff. Ch. Calyx in four or five deep segments. Corolla none. Styles two, divided. Capsule brittle, of one cell and four valves, with many seeds.

1. *T. laurifolia.* (Abelana guianensis; Aubl. t. 234.) Laurel-leaved *Abelana,* or *Trichocarpus.*—Found by Aublet, on the banks of rivers in Guiana, particularly about one which empties itself into the Sinemari river, thirty leagues above its mouth. This tree bears flowers and fruit in November, and is known by the Caribbee Indians by the name of *Gouloogou-Abelana.* Its trunk is forty or fifty feet high, about two feet and a half thick, with a smooth reddish bark; the wood white, with some redness at the heart. *Branches* numerous and widely extended in all directions. *Leaves* alternate, flaked, elliptical, bluntly pointed, entire, rigid, smooth, undulated, with one rib and many transverse veins; their greatest length seven inches; breadth two and a half. *Flowers* small, in short, simple, axillary or terminal, spreading clusters. *Stamens* white, with yellow anthers. *Capsule,* when its bristles are fallen, about the size of a filbert. Its valves are likewise soon decussate, leaving the seeds enveloped in a red villose membrane. Nothing is recorded of the use or qualities of any part.

**TRICHOCEPHALUS,** in *Zoology,* a genus of the Insecta order of Vermes; the characters of which are, that the body is elastic and contorted, the hinder part thick and elevated, the anterior capillary and of double length, sometimes terminating knotty. Of this genus there are six species, distributed into two classes: viz.

*With Simple Head.*

**Homins.** Above subcrenated, beneath smooth, forepart very subtilely frilated; two inches long.

Equi. Two inches and a half long.

**Aph.** With tail on both sides furnished with crenated scales; equal to the human.

**Muris.** With the head three-knotted: found in the intestine of the mouse, between the duodenum and rectum.

**Vulpis.** With an acute head; neck transversely frilated, and unilateral veiscous. Found in the exuim of the fox.

**With Uncinated or Hooked Head.**

**Lacertae.** With tail on both sides scaly. Found in the intestines of the lizard.

**TRICODA,** a genus of the Infusoria order of Vermes; the characters of which are, that the worm is inconficuously with the naked eye, pellicid, and hairy on the other part. *Grimaldi's* edition of *Linnaeus* comprehends forty-four species.

*Without a Tail.*

**Patella.** Univalve; before and behind furnished with extended unequal bristles. Found in the marishes of Denmark.

**Inquilinus.** Vaginated with a green small cylindrical bag, and retortile pedicle. Found in very pure sea-water.

**Asiana.** Elongated, with the apex of the neck elongated beneath. Found in pure waters.

**Larus.** Dilated forward, with a gibbous back. Found in marishes in which the leaves of the poplar putrefy.

**Unkula.** Smooth, elongated, equal, on the fore-part hairy. Found in putrid infusions of hay and other vegetables.

**Sannio.** Incurvated; above ciliated, below truncated. Found rarely in water furnishing duck-weed.

Vol. XXXVI.

**TRI**

**Linter.** Ovate-oblong, somewhat prominent at both ends. Found by the Greenlanders in water, in which the lichen coriarius has been infused.

**Pubes.** Ovate-oblong, gibbous, on the fore-part depressed. Found in duck-weed water.

**Cyprip.** Obovate, above sinuated towards the hinder part, on the fore-part hairy. Found in water covered with duck-weed.

**Cyclidium.** Ovate, with gaping apex and hairy base. Found in water in which vegetables have been infused.

**Uninarium.** Ovate, with a very short hairy beak. Found in an infusion of hay.

**Lepus.** Ovate, with hairy apex and brilly base. Found in animal and vegetable infusions.

**Calodium.** Broadish, oblong, on the fore-part furnished with shining small cornicles. Found in vegetable infusions.

**Silurus.** Oblong, hairy before and behind, with a ciliated back. Found in water abounding with conviva.

**Mytilus.** Subclavated, at both ends wider, green and ciliated. Found in marish-water.

**Unkula.** Pitcher-shaped; before hairy. Found rarely in water covered with duck-weed.

**Lyceus.** Subquadrate, with hooked beak and hairy mouth.

**Semiluna.** Semi-orbicular, on the fore-part below-hairy. Found in duck-weed water.

**Oreis.** Orbicular, emarginated and hairy on the fore-part.

**Cimex.** Above convex, below smooth and hairy. Found in vegetable infusions.

**Charon.** Cymbiform, on the front hairy. Found in sea-water.

**Tinea.** Clavated, on the fore-part hairy; behind thick. Found in hay infusion.

**Trigona.** Convex, before ciliated, and behind eroded.

**Angulus.** Angulated, hairy at the apex. Found in hay-water.

**Pullaster.** Ovate, before sinuated; crilfated in front and hairy at the base. Found in duck-weed water.

**Pulex.** Ovate, before incised; in the front and base hairy. Found as the laft.

**Pelioniella.** Cylindric, before hairy, behind brilly: in vegetable infusions.

**Camelus.** Hairy on the fore-part, thickish in the middle; and on both sides emarginated. Found as the laft.

**Acarus.** Piriform, on the fore-part below hairy, behind pedate: in water covered with duck-weeds.

**Bomia.** Mutabile, on the fore-part furnished with scattered hairs: as the laft.

**Granata.** Spherical, with opaque centre, and hairy periphery: as before.

**Cometa.** Spherical, before hairy, with an appendant globle. Found in very pure water.

**Grandinella.** Spherical, pellicid, above hairy: as the laft.

**Sol.** Globular, radiated: in water kept three weeks.

**Synaster.** Subquadrate, with obtuse beak, and dink with shining pedicles. Found in sea-water that has been kept.

**Rattus.** Oblong carinated, the fore-part having very short hairs, the hind-part a long simple bristle: in stagnant waters.

**Ciliata.** Venticose, behind pectinated with hairs. Found in muffule-water.
SULCATA. With ovate ventricose apex, acuminate, ventral furrow and on both fides hairy: as before.

**With Tail.**

TRISPURA. Broadly, before hairy, behind briliately, finemnt on one side, mucronated on the other. Found in sea-water for some time kept.

DEReciNUS. Oblong, before hairy, behind truncated with a reflex tail. Found in hay-water.

LUDUS. Curvate, above hairy, with an extended tail. Found rarely in the grove-waters of Denmark.

MUSCULUS. Oval, on the fore-part hairy, the hinder part caudate. Found in hay-water.

PISUS. Oblong, on the fore-part hairy, behind very finely extemated in a tail: in duck-weed water.

ON NICULAR. Oblong, before hairy, behind somewhat sharpened: in pure water.

CLAVUS. Before rounded and hairy, behind an acuminate tail. Found in marshes.

PUPA. Aculeated, hairy in front, with a bent tail. Found in duck-weed water.

CLAVA. Clavated, hairy in front, with a reflexile tail. Found rarely in the marshy waters of Denmark.


Eff. Ch. Naked. Powder copious, mealy, encompaossed with a downy or hairy coat.

1. T. fulginosus. Perf. n. 1.—“Large, nearly globular, villous, whitish. Powder bright red, intermixed with clustered threads.”—Found in autumn, on the rotten trunks of Spruce Firs. An inch or two wide, soft, but not melting. The threads to which the *fdis* are attached spreading through the powdery mafs, in little tufts, from a subjacent membrane. *Perfon*.

2. T. rofius. Hofm. Germ. v. 2. t. 16. f. 1. Perf. n. 2. (Farinaria rofia; Sowerb. Fung. 360. f. 3.)—Rose-coloured, encompaossed with a fine, spreading, depressed, filamentous border. Frequent in spring on rotten branches, especially between the wood and bark of the Sallow and Aspen. Half an inch broad, roundish or oblong, with a cobweb-like circumferenc.

3. T. angustatum. (Farinaria arantica; Sowerb. ibid. f. 2.)—Tawny, orbicular. Powdery particles somewhat ovate, partly scattered, with a slight filamentous border. On leaves, often forming, as it were, a little nelf, with a few cottony filaments towards the edges. *Sowerby*.

4. T. feminarium. (Farinaria feminaria; Sowerb. ibid. f. 1.)—Powder black, in little compact globules, on a white, mealy, slightly fibrous, orbicular base.—Observed by the Rev. J. Holme, of Peter-houfe, Cambridge, on the leaves of a Willow. This confits of little white scattered orbicular spots of a white mealy subfiability, from a quarter to half an inch broad, lodging several minute deciduous mafs of black powder, or feeds.

5. T. vivide. Perf. n. 3. "Diff. Meth. Fung. 12." (Pyrenium lignorum 8; vulgare; Tode Fung. Macklcn. v. 1. 33. t. 3. f. 29.)—Roundish or unequal; very soft, with bright-green powder, and whitish fuculent grains.—Found after autumnal rains, among fragments of fallen branches of trees, or of the ftems of large herbaceous plants. Its subfiability is extremely soft, two or three lines in diameter. The white cobweb coat opens at the top, and expose the minute condened grains, or powder, of a most beautiful verdigris-green. *Perfon*, Tode.

6. T. aureum. Perf. n. 4. Obs. Mycol. fasc. 1. 99.—Widely expanded. Hairy coat whitish, very thin. Powder dull yellow.”—This occurs rarely, in fieves or hot-houses, on rotten wood, into which it is funk. Almost three inches broad, being one of the largest of its genus, but scarcely two lines in thickness. The fhiage covering is thin and evanescent. *Perfon*.


10. T. ievus. Perf. n. 8. Obs. Mycol. fusc. 1. 99. —Whitish, spreading, smooth, turning bull-coloured. Powder yellow. This is found on the ground, as well as spreading over mofts, to the breadth of an inch and half or two inches, but is not among the common fpecies. It is more permanent than fome others.

11. T. tuberculatum. Perf. n. 9. Obs. Mycol. fusc. 1. 10. t. 2. f. 8.—Pure white, nearly orbicular; at firft downy; afterwards tubercular. Powder grey.—Frequent after great rains, on the ground in shady woods. When young it is very white, of a cobweb texture, but soon becomes greenish. When full-grown the surface is beft with oblong tubercles. In a few days the whole changes to a grey powder.

TRICHODESMA, from 3, 8, 12, a hair, and 8, 12, a tie, alluding to the connexion of the anthers by their pubescence.—Brown Prodr. Nov. Holl. v. 1. 256. (Borraginoidae; Boerh. Lintg.—Bat. v. 1. 188. fig. F.—K. Boar.—Germ. t. 67. Cynoglofideae; Hnard in Mem. de l’Acad des Sc. for 1718; German edition 194. t. 9. 10. (Pollina; Medicus Phil. Bot. part. 1. 32.)—Claws and order, Pentadacty Monegynia. Nat. Ord. Afferofolos, Linn. Borraginae, Jull.

Gen. Ch. Cal. Perianth inferior, of one leaf, in five deep, erect, permanent segments. Cor. of one petal, wheel-shaped; the length of the calyx; tube short, somewhat funnel-shaped; limb spreading, nearly flat, in five deep, equal, keeled, taper-pointed segments; throat naked. Stam. Filaments five, very short, inserted into the throat of the corolla; anthers oblong, prominent, converging, shorter than the limb, tipped with twifted briliately points, and bound together by their two rows of dorfal hairs. *Pfyl. Germens four, superior; fyle central, thread-shaped, longer than the flamens; stigma fimple, blufht. Seeds. Nuts four, ovate, gibbous, half fink in the cells of the four-winged central column near its fummit.

Eff. Ch. Corolla wheel-shaped, with a naked throat. Anthers connected by dorfal hairs.

Mr. Brown has feparated this genus, confifing of three known fpecies, from the Linnian *Borrago*, for the very fufficient reafon of the corolla having no valves or prominences in
TRI

in its throat; to say nothing of the connexion of the anther; or infection of the seeds. The plants are herbaceous, clothed with pungent bristles; their flowers axillary, or racemose with bracteas. See Borago.

2. T. indicum. Indian Trichodesma. (Borago indic; Linn. Sp. Pl. 197. Willd. Sp. Pl. v. 1. 776. Ait. Hort. Kew. v. 1. 256. Borraginoides angustifolia, flore pallecente ceruleo; Boerh. as above 188, with a plate. Cynoglossoides folio caulem amplaxente; Ifnard as above, t. 9.)—Flowers axillary. Segments of the calyx auricled at the base. Seeds without a border. Leaves clasping the stem.—Native of the East Indies. A tender annual, cultivated by Miller, and flowering throughout the summer and autumn. The stem is much branched, rather diffuse. Leaves felid; oblong, blunter, entire, rough with hairs and canuous points; clasping the stem with their lightly heart-shaped base. Flowers axillary, solitary, stalked, drooping, white, pale blue, or reddish, with five ruffled spots round the mouth. Calyx hairy, each segment acute, much elongated at the base. Seeds pale, nearly smooth.


3. T. zeylanicum. Ceylon Trichodesma. Dr. n. 1. (Borago zeylanica; Linn. Mant. 202. Willd. Sp. Pl. v. 1. 777. Ait. Hort. Kew. v. 1. 257. Jacob. Coll. v. 3. 169. Ic. Rar. t. 314. Burn. Ind. 41. t. 14. f. 2. Anchoa bugloides, lithopherum femine; Pluck. Mant. 13. Phyt. t. 335. f. 4.)—Clusters terminal. Calyx without auricles. Seeds smooth, without a border. Leaves nearly sessile, tapering at the base.—Native of Ceylon, and other parts of the East Indies, as well as of New Holland, within the tropic. Dr. Roxburgh's fent seeds to Mr Joseph Banks, in 1799. This, like the rest, is an annual plant, flowering in the flower about July and August. The herbage is, as Mr. Brown remarks, very variable in its quantity of bristles and soft hairs; the latter, in wild species, are sometimes very abundant, giving the long flower-flake, and calyx, more especially, a hoary aspect. The leaves are oblong or oval, softly opposite. Clusters leafy. Corolla white and semi-transparent. Seeds oval, grey, smooth and highly polished, like our Common Grown well.

TRICHODIUM, received that name from Michaux, who constructed it out of 1b. 15. a taxon, a hair, and 3. form, or appearance, in allusion to the capillary hairs of the panicle.


Gen. Ch. Cal. Glume fingle-flowered, of two linear-lanceolate, acute, awnless, nearly equal valves. Cor. Glume of one valve, shorter than the calyx, ovato-lanceolate, membranous, awnless, smooth, permanent. NeCarya a deeply cloven scale. Stam. Filaments three, capillary, longer than the calyx; anthers oblong, cloven at each end. Fil. Germin roundish-ovate; filyles two, dis tant, short; stigmas loosely feathery, with long roughish hairs. Peric. none. Seed one, roundish, pointed at each end, unconnected with the corolla.

TRI


2. T. decumbent. Decumbent Brittle-gras. Michaux as above. Pursh n. 2. Ait. Epit. 375. (Coronocype perennans; Walt. Carolin. 74. Agrostis anamala; Willd. Sp. Pl. v. 1. 370. A. Coronocype; Frazer Monogr. with a plate.)—Stems decumbent. Leaves spreading, linear-lanceolate, with smooth sheaths. Calyx-valves taper-pointed.—On moil hiils, and in short gras-meadows, from Canada to Carolina, flowering from June to August. Root perennial. This and the foregoing are highly valuable grasses. Pursh. Larger than the first species, with longer and broader smooth leaves, which spread in every direction. Stipula, as Wildenow observes, larger, lanceolate, torn. Panicle large and loose. Flowers about the size of our Agrostis alba, being twice the size of the foregoing, and much more numerous.

This, known by the name of Frazer's New American Gras, was brought from Carolina by that indefatigable collector, in the year 1798. His friend Mr. Walter, in the Flora Caroliniana, extols this grass as one of the Creator's most precious gifts, which he himself was destined to make first known to mankind. Kalm had indeed, long ago, sent a specimen to Linneus, but without any particular account of its use or distinctions, so that his specimen remained undiffigerated from other species, which it much resembles. The solitary valve of the corolla led Mr. Walter to refer this plant to the genus Coronocype, to which it has no other affinity. He was moreover flattered by this name, as concerning with his own idea of the value of his discovery. Nor do we doubt the accuracy of his statements, published in Mr. Frazier's Monograph above cited. Nevertheless, this grass has disappointed the hopes of European cultivators, and has now totally disappeared. "The places that knew it, know it no more." It is not even mentioned in Mr. Sinclair's elaborate and valuable experimental work, the Hortus Graminum Woburniæ, nor by Mr. Dryander in the Hortus Kewensis, though Mr. Axton has supplied the latter defect in his Epitome. So difficult is it to cultivate grasses, in general, away from their native situations, for any agricultural profit, that the disappointment we are obliged to record, is no impeachment of the accuracy of those who still reckon our Trichodium among the best grasses in America.


TRICHOGAMILA, a name of Dr. Patrick Brown's, which he has left, according to his usual custom, unexplained. It appears derived from Sp, sin; a hair, and gama, marriage.
TRI

marriage, alluding to the pubescence enveloping both organs of impregnation.—Browne Jam. 218.—We have seen no specimen of this plant. It is said to grow close to the beach at Bull-bay, in Jamaica. The flower is shrubby, stiff, simple, three or four feet in height and, as many lines in diameter. Leaves round, smooth, alternate. Flowers small and whitish. Outer calyx (rather bracteas) two small deciduous leaves; inner cup-shaped, of one leaf, divided half way down into five ovate segments. Corolla of five oblong, abrupt, somewhat spreading petals, or of one petal divided to the base. Filaments ten, downy, crept, shorter than the corolla. Anthers rounded. German minute, in the bottom of the calyx. Style downy, the length of the stamens, with a blunted stigma. Drupes the size and appearance of a gall-nut, but light and hollow, globose, woody, thin, with a thin coat, of one cell, inclined, rather uneven in its surface. Nuts two, oblong-ovate, two-lobed; one of them usuallv abortive; the other fixed to the bottom of the drupa, but not half occupying its cavity.

Jullifce, Gen. Pl. 260, fulsepts this to be the fame genus with Chlacca or Murrafa (see thefe articles); and Linneus has written Chalcas againfit Browne’s description. We presume it is the fame individual species, which, though of East Indian origin, had accidentally been conveyed to the shores of Jamaica. If this be correct, Browne mifook the leaves for fimple leaves, and perhaps did not meet with its fruit in its natural more juicy flave.

TRICHOMA, in Surgery, the difeafe more commonly called Plica Polonica.

TRICHOMANES, in Botany, an ancient Greek name for some small delicate kind of fern, suppos’d, from the description of Dioscorides, book 4. chap. 157, to be Asplenium Trichomanes of Linneus, which very well answers to that description. The name, from τρίχα, a hair, (whatever may be the origin of the root of the word,) about which etymologians disagree,) alludes to the flinder flinging flalks, common to most of the fern tribe, which procured them the appellation of Capillary herbs, and the reputation of improving the growth of the human hair. Linneus selec’ted this name for a delicate, pellucid, capillary-flaked genus, to which it very fuitable; more efpecially if we take it into confideration, as he probably did, the peculiar character of a prominent hair or flirre, originating from the receptacle of the leaf-vefils.—Linn. Gen. 560. Schreb. 758. Willd. Sp. Pl. v. 5. 498. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 5. 529. Sim. Mem. de l’Acad. de Turin, v. 5. 417. Tracts 255. Swartz Fil. 141. Ind. Occ. 1724. Brown Prodr. Nov. Holl. v. 1. 159. Sprengel Crypt. Engl. ed. 164. t. 5. f. 35. Juss. 16. Lamarck Illust. t. 871.—Chaff and order, Cryptogamia Filices. Nat. Ord. Filices.

Gen. Ch. Fructifications inferred into the margin of the frond, terminal, distinct, tubular. Involucrum of one leaf, urn-shaped, of the texture of the frond, opening outward. Capule of two valves, bound by a ciliated ring, numerous, to the outer part of a cylindrical common receptacle, or column, whose capillary naked point projects beyond the involucrum.


Obf. Hymenophyllum (fee that article) was first separated by the writer of this, from Trichomanes, with which it had, on account of their familiar membraneous pellucid habits, been always confounded. The bivalve involucrum, enclosing the common receptacle, clearly diftinguishes it from the genus before us, whose involucrum has a spreading undivided border.

The second edition of Species Plantarum contains eleven, and the fourteenth edition of Syluma Vegetabilium thirteen, species of Trichomanes, as Linneus underflood the genus. But though from these are deduced what are now referred to Hymenophyllum and Davailla, Willdenow enumerates thirty-four species of genuine Trichomanes. These are distributed into four fections, according to the subdivision of their fronds. We shall felec’t examples.

Sect. 1. Frond fimple. Twelve species in Willdenow. T. reniforme. Kidney-shaped brittle-fern. Forl. Prodr. 84. Willd. n. 1. Swartz Fil. 360. "Schiukru Crypt. t. 130. f. 134." R. A. Hedw. Fil. fac. 3. Fronds kidney-shaped, undivided, on bordered flalks.—Gathered by Forre, as well as by Mr. A. Menzies, in New Zealand. An elegant very fingular fern, with long, creeping, thread-shaped, perennial roots, attached by rigid downy fibres, and throwing up flatter fronds, various in fize, each on a simple smooth flalk, from one to fix inches high, bordered, or fightly winged, efpecially in the upper part. The leaf itself is vertical, kidney-shaped, from one and a half to three inches wide, of a dull olive-green, membraneous, semi-pellucid, smooth, full of numerous, radiating, repeatedly forked veins; the margin entire, fightly值班, in the larger or other fpecies befet with a row of cup-shaped imferred involucrums, each terminating a vein, and each protruding a thick rough column, twice its own length, bearing a number of pale flining annulated capsules.

T. membranaceum. Membranous Brittle-fern. Linn. Sp. Pl. 1560. Willd. n. 5. Swartz Ind. Occ. 1724. (Darea americana lichenoides; Petiv. Mut. n. 763. Adianum mucicofum, lichen petrii facie; Plum. Fil. 83. t. 101. f. a.) Amer. 34. t. 50. f. a; inaccurately copied in Pluk. Phyt. t. 285. f. 3; and again in Petiv. Fil. t. 13. f. 5.) — Fronds fefile, dilated upwards, obfute, undivided, or torn; the margin befet with peltate fcales.—Found on wet, often inundated, flones and rocks about the banks of rivers, in Hifpaniola. This has fcarce erode fronds and membraneous texture of the foregoing, but with a folly glofs. Its black, fagggy, creeping roots bear scattered fronds, defitute of flalks, sometimes roundifh, but mostly wedgfe-shaped, from one to three inches high, varifhly fplit, dilated, and jagged, befet with innumerable crowded radiating veins, and much refembling the texture of a bat’s wing. The margin, as well as the tip of each fegment, bears brown peltate fcales, whose ife is unknown, but which, as Dr. Swartz remarks, might eafily caufe this fern to be taken for an Adiantum, were they not found on the fame individual, though far more fparingly, the proper fructification of a Trichomanes, confliting of deeply imferred, fender, tubular involucrums, dilated, orbicular, and roughifi at the mouth, each with a prominent (not as Swartz fays a concealed) column.

T. mucoidae. Moffy Brittle-fern. Swartz Ind. Occ. 1726. Willd. n. 6. (T. hymenoides; R. A. Hedw. Fil. t. 3. f. 3. Phyllitis feandens minima, mufci facie, folis membranaceae lebrotundia; Sloane Jam. v. 74. t. 27. f. 1.)—Fronds roundifh-oblong, irregularly fcutated, wavy, obtufite, on short hairy flalks. Involucrum prominent, cylinderical; bivalve at the mouth. — Found creeping over the trunks of trees, in low wet places, in Jamaica. The root is black, thick, and woolly, spreading to the extent of feveral inches. Fronds light green, lying over each other, fearfully more than half an inch wide, with frong, branching, but not parallel or crowded veins; the fegments rounded and wavy. Involucrums at length flipped as it were, and projecting entirely beyond the leaf on winged flalks; their margin...
margin of two rounded valves, edged with brown. The column is certainly prominent. Our description differs from Dr. Swartz's in some material points, though taken from his own specimens.

T. reptans. Trailing Britle-fern. Swartz Ind. Occ. 1727. Willd. n. 9. R. A. Hedw. Fil. t. 3. f. 4. bad. — Fronds obovate-oblong, nearly sessile, irregularly pinnatifid, with oblong obtuse segments; their base wedge-shaped. Involucrum immersed, its orbicular mouth not projecting beyond the leaf.—Native of old mossy trunks of trees, in the mountainous part of Jamaica. If we are right in our ideas of this species, it is browner and thinner than the last, with a larger frond, but shorter flalk; the veins much less thick and prominent. The involucrum moreover does not project, till tipped by age, nor is its margin divided. The column is certainly prominent. We do not boast, in this case, an original specimen from the author, and therefore may be mistaken.

T. filusum. Sinuated Britle-fern. Willd. n. 10. Lamarck f. 1. (T. crispsum; Linn. Sp. Pl. ed. 1. 1097, ed. 2. 1560, excluding the synonyms of Plumier and Peyt.)—Frond lanceolate, pinnatifid; tapering at the base; segments ovate, obtuse, somewhat angular, with zigzag veins, and distinct solitary fructifications. — Native of the West Indies; Willdenow says of Guiana. A very elegant and distinct species, sometimes resembling the outline of an oak-leaf, but it is more usually of a linear-lanceolate figure, tapering at each end, four inches, more or less, in height, light olive, pellucid, finely reticulated, flat, rarely a little hairy, with elegant, zigzag, equally diverged veins. Involucrum immersed at the blunt point of each segment, almost always solitary, its dilated orbicular border not projecting beyond the leaf. Column slender, prominent, full twice as long as the involucrum. This seems, by the Linnaean herbarium, to be what Linnaeus intended for T. crispsum; but it is evident from the specific character and name that he had full as much in his contemplation Plumiér's t. 86, quoted for a synonym; and the latter being universally received as the true crispsum, we shall fo retain it. See the next section.

T. polypholoides. Polypondy Britle-fern. Linn. Sp. Pl. ed. 1. 1098. ed. 2. 1561. Swartz Fil. 145. Willd. n. 11. — "Frond lanceolate, pinnatifid, wavy. Flowers solitary, terminal."—Native of India. —"Frond the length and breadth of the finger, pinnatifid almost to the mid-rib; lobes lanceolate, bluntly ferrated, acute at the summit, each of them furnished with a solitary flower at the point. The frond moreover is pellucid, with alternate veins."—Such is Linnaeus's description of this species, which no person has ever discovered, and which can only be determined from his works or herbarium. In the latter nothing presents itself under this name; but the specimen marked crispsum, mentioned under our preceding species, so precisely answers to this description of polypholoides, that we cannot but believe it is the very plant, and that Linnaeus has here fallen into a most complicated mistake. As we are, nevertheless, unable to prove this, we would still retain the excellent name of filusum, to which those who think as we do may refer polypholoides as a synonym, with or without a mark of doubt.

T. elegans. Elegant Britle-fern. Rudge Guian. 24. t. 55. Willd. n. 12.—Barren fronds lanceolate, deeply pinnatifid; fertile ones linear, pinnate, on longer flalks. —Native of watery mossy places in Guiana. Fronds tufted; the barrens ones leafy, pellucid, of numerous, deep, parallel, linear, blunt-tipped, somewhat jagged segments, that are near an inch long; their common flalk round, about two inches in length, nearly smooth; fertile ones fewer, their flalks erect, five or six inches long, the frond itself four or five, and only half an inch wide, scarcely at all leafy, but composed of two dense rows of numerous, crowded, folded, cylindrical, two-edged involucral cups, each with a small orbicular border, and protruding a long, curved, rough, flilly club-shaped column, with the length of the involucrum itself.

Sect. 2. Frond pinnate. Three species; Willd.

T. crispsum. Crisped Britle-fern. Linn. Sp. Pl. 1560. Swartz Ind. Occ. 1731. Willd. n. 14. R. A. Hedw. Fil. t. 4. f. 2. (Trichomanes n. 1; Linn. Hort. Cliff. 476. Polypodium crispsum caliciferum; Plum. Fil. 67. t. 86; copied in Petit. Fil. t. 11. f. 8.)—Frond pinnate; leaflets oblong, obtuse, wavy, crisped, hairy, many-flowered at the extremity; the upper ones confluent.—Native of various parts of the West Indies. The tufted hairy root bears many lanceolate folded fronds, about a foot high, of a light pellucid olive-green, very thin and membranous; their numerous leaflets about an inch long, elegantly crisped and plaited, copiously veined, clothed with feattered tawny hairs. The blunt extremity of each leaflet, except some of the inferior ones, bears from four to six large, densely ferrated, rather crowded, tubular involucrums, with orbicular entire flilly divided calyces. From each proceeds a long flalk, almost capillary, roughen column, whole point when entire is blunt, or rather capitate.

T. floribundum. Many-flowered Britle-fern. Willd. n. 15. (T. pinnatum; Swartz Fil. 142. R. A. Hedw. Fil. t. 4. f. 1. T. rhizophylla; Cav. Leccion. 279. Swartz Fil. 142.)—Frond pinnate; leaflets lanceolate, ferrated; the upper ones deciduous, confluent. Fructification marginal, fringe-like, prominent.—Native of several parts of the West Indies. Twice the size of the last. The leaflets are usually near two inches long, above half an inch broad, alternate, blunt-tipped, nearly smooth, beset with immovable close transverse veins, connected by fine reticulations; their margin undulated and finely ferrated: those of the barren fronds crowded; of the fertile ones remote, most of their ferratures tipped with a little, brown, cup-shaped, entirely prominent and naked involucrum, with a capitate column about its own length. Cavannels speaks of this as the handmoeil species he had seen. His description leaves no doubt as to the identity of his plant, though we have not seen an instance of any sprouuting roots from the tip of the frond, which probably led Dr. Swartz, without seeing specimens, to adopt it as distinct.

Sect. 3. Frond doubly pinnatifid. Six species; Willd.

T. crinimum. Hairy Britle-fern. Swartz Ind. Occ. 1730. Willd. n. 19. R. A. Hedw. Fil. t. 1. —Frond pinnate; leaflets obtuse, pinnatifid, decurrent, confluent; hairy at the margin and veins; segments often cloven. Stalk hairy. —Found on the trunks of trees, on the lofty mountains of Jamaica. Frond about three inches in length, pale, pellucid; its tawny-haired flalk scarcely so long. Involucrum here and there imbedded at the ends of the segments of each leaflet, with a dilated, fringed, orbicular margin. Column long, rough, compact with a taper point. The segments of the leaflets are lanceolate, blunt-tipped, not to generally divided in our specimens as in Hedwig's figure.

T. pycidiiferum. Covered Britle-fern. Linn. Sp. Pl. 1561. Swartz Ind. Occ. 1739? Willd. n. 21. (Filicula pycidiiferum; Plum. Fil. 73. t. 50. f. E; copied in Petit. Fil. t. 13. f. 13.)—Frond pinnate; leaflets oblong, obtuse, decurrent, pinnatifid, with linear, obtuse, decurrent, entire, mostly three-clipped segments. Stalks all winged. Involucrum closed by a lid bearing the column.—Found by Plumier
mier on molly trees in Hispaniola. He is our only certain authority for this species, the description of Swartz not answering exactly to his account, and the figure in R. A. Hedwig, t. 29, f. 2, indicating something very different. The true *T. pyxidiferum* is so named because the involucrum is formed like a box with a convex lid, through which latter the long prominent column is continued. We have seen indications of no such character in any other species. The column is crested and hairy. *Fronds* stalked, three or four inches high, smooth, very thin, their common as well as partial flanks winged throughout, and of the same linear form as the segments of the leaflets, which are notched at the end. *Involucrum* one or two about the lower part of each principal leaflet cup-shaped, quite cloaked by the above-mentioned lid.

*T. europaeum*. European Britle-fern. (T. pyxidiferum; Hedf. 461. Bolt. Fil. 56. t. 3.) *Hymenophyllum tunbridgense* fil. Fl. Brit. 1142. *H. alatum*; Engl. Bot. t. 1417. *F. humilis* repens, foliis pellicoides et plenudantis figure of the latter, this will be found to differ chiefly in *involucrum* and leaflets oblong, decurrent, pinnatifid, with linear, obtuse, decurrent, entire segments. Stalks all winged. *Involucrum* open, with a slightly spreading border. Few plants of any country have caused more curiosity, or more diversity of opinion, than this fern, originally discovered by Dr. Richardson "at B-shank, scarce half a mile from Bingley, Yorkshire, at the head of a remarkable spring." From thence Mr. R. T. Seide and Mr. Dick-son have brought us young plants, like *Dillenius* f. 4, but which could not find one like his f. 3. The botanists of Ireland have been more fortunate. Mr. J. T. Mackay met with perfect specimens in fruitification, on rocks about the cataracate, at the bottom of Turk mountain, Killarney. Some of these, more perfect than what is figured in Engl. Bot., lead us to con-consider with Mr. Brown's opinion, expressed in his *Prodromus*, in removing this plant from *Hymenophyllum*, to the present genus. It was indeed considered by Linnaeus as not distinct from *T. pyxidiferum*, nor is this opinion so wide of the truth as has been supposed. By a comparison with Plumer's specimen, we believe this to be more compound, with a smaller, more slender, two-edged *involucrum*, in which we can discover nothing like a lid. Its margin is narrow, but rather spreading. The *capsules* are few and large, bright yellow, with a broad ring.

*Column* long and prominent. Some appearances in this and other species lead us to believe the *column*, laden with *capsules*, is generally protruded out of its *involucrum* after the *capsules* are ripe, and it may therefore, in a very early state, be found entirely inclosed therein. This being the only European Trichomanes, we hope our specific name may be allowed, that of *alatum* being preoccupied; see Wildl. n. 17.

*T. venosum*. Veiny Britle-fern. Brown Prodr. n. 1.—"Frond pinnate; leaflets linear, veiny, wavy, somewhat crenate; the lower ones lobed or pinnatifid at the base, and bearing a solitary involucrum at their inner margin."—Gathered by Mr. Brown, in the island of Van Diemen, and near Port Jackson, New South Wales. This shows akin to the two last, but we have seen no specimens.


*T. trichoides*. Capillary Britle-fern. Swartz Ind. Occ. 1741. Wildl. n. 23. (T. tenellum; R. A. Hedw. Fil. t. 3. f. 1.)—*Frond* tripinnate; leaflets linear, almost capillary, divided, emarginate. *Involucrum* flaked, lateral, solitary, near the base of the principal branches. In moist, shady, grassy places, in the cooler parts of Jamaica and Hispaniola. This is a peculiarly delicate and slender fern, from two to four inches high, whose ramifications are so exceedingly narrow as to appear capillary, though the ultimate divisions are truly leafy, conflating of a very mid-rib, bordered with a continued, even, entire, feebly crenate, leafy margin at each side, slightly dilated upward, and blunt at the end. The fructification is lateral and solitary, much as in the three preceding; each *involucrum* flaked, tubular, two-edged, with a broad, orbicular, wavy margin. The column is very long and capillary.

*T. rigidum*. Rigid Britle-fern. Swartz Ind. Occ. 1738. Wildl. n. 29. R. A. Hedwig Fil. t. 2.—*Frond* tripinnate; leaflets pinnatifid, with linear, entire, taper-pointed segments. Common flanks two-edged, rigid. *Involucrum* flaked, lateral, solitary, near the base of the secondary branches. Found about the roots of trees, on the lofty mountains of Jamaica. The creeping *root* sends up numerous rigid upright *fronds*, twelve or eighteen inches in height, of which at least one half consists of a brown, shining, round, firm *frill*. The leafy part is finely and elegantly divided, is a cinnamon green, and the mouth spreading. *Column* very rigid and inflexed; *Involucrum* urn-shaped, with a membranous spreading border. *Column* thick, not much protruding.

*T. radicans*. Winged Climbing Britle-fern. Swartz Ind. Occ. 1736. Wildl. n. 30. (T. scanderi; R. A. Hedwig Fil. t. 6, excluding the synonyms.)—*Frond* doubly pinnate; leaflets pinnatifid, with linear, cloven, obtuse segments. Common and partial flanks smooth, all winged. *Stem* climbing, creeping. Found on the mountains of Jamaica, creeping up the trunks of trees to a great extent, the downy rully-coloured main *frond*, or *root* as it might be called, being firmly attached to the bark of the tree, throwing out little radicles as it goes. *Fronds* scattered, from nine to twelve inches long, on winged *frills* measuring from one to three inches, ovato-lanceolate, twice or thrice pinnate, dark green, smooth, the *frills* of all their subdivisions bordered with an entire uninterrupted wing; branches, leaflets and segments alternate. *Involucrum* cylindrical or somewhat ovate, slightly winged with a portion of the segment which it carries, very narrow at the mouth spreading. *Column* long and slender. A very different species from the following, for which it has been mistaken by several botanists, to some of whom, though not quoted by Hedwig, we can trace his error.

*T. scanderi*. Great Climbing Britle-fern. Linn. Sp. Pl. 1562. Wildl. n. 31. Swartz Ind. Occ. 1737. (Adiantum scanderi ramosissimum, lacinii retusus díficéntum; Plum. Fil. 76. t. 93; copied in Petiv. Fil. t. 12. f. 5.)—*Frond* tripinnate; leaflets oblong, pinnatifid, with linear obtuse segments. Common *frills* round; partial winged, hairy. *Stem* climbing, creeping. Native of mountainous woods in Hispaniola, where it was gathered by Plumer, and since by Dr. Swartz. A much larger plant than the foregoing, creeping over the trunks of old trees. Each *frond*, two feet high, has a round, not bordered, main *frill*, the partial ones only being winged. All the leaflets and their *frills* are clothed with long loose hairs, of a shining or golden brown, such as are often likewise observable on the main *frill*. The colour of the latter is a little olive than the leaf, and its reticulations much coarser. *Involucrum* much the same, nor do we find the column, when perfect, shorter in one than the other. Sloane's v. 1. t. 68, may be intended for *T. scanderi*, but it is not sufficiently exact to afford any information.

*T. tamarijiforinum*. Tamarisk Britle-fern. Jacq. Coll. v. 3. 285. t. 21. f. 2. Wildl. n. 34.—*Frond* doubly pinnate; leaflets lanceolate, pinnatifid, with linear, very narrow, smooth
smooth segments. Common stalk round, brilily; partial winged, smooth. Involucrum flaked.—Native of the isle of Bourbon. Our specimen was communicated by M. Thévenin the younger Linnaeus, who took it for T. cruciatum; but there is no appearance of any common trailing fern. The frond is almost two feet high. Stalk pale and smooth where naked, and in the leafy part of the frond blackish and hifid. Divisions of the leaflets peculiarly fine, regular and delicate, bluntish, sometimes emarginate, olive-green, without any hairs. Involucrum short and roundish, on a stalk more or less winged; its mouth spreading. Column long.

TRICHONEMAS, in Gardening, comprehends plants of the herbaceous fern kinds,—the maiden-hair ferns; among which, the species which are cultivated for garden use and variety, are the canary maiden-hair fern (T. canariensis); and the Tunbridge maiden-hair (T. tunbrigdenae). These are both perennial plants, which have something curious and interesting in their frondose growth and habit, and are therefore proper to be cultivated for the ornament and variety which they afford.

Method of Culture.—Both these plants may be increased by slipping their branches, or dividing their roots, and planting them in pots of light earth in the first fortnight, and the latter kind either in the same way, or in a dry border of light mould, the former to be removed in the winter season to the protection of the greenhouse, but the latter to remain where planted, or some put into pots, to be placed out in particular situations, as occasion may require.

They both form a singular variety when put in allemand with other different plants of the exotic greenhouse sorts, and other kinds in the borders and various compartments.


Gen. Ch. Cal. Sheath inferior, more than half the length of the corolla, of two lanceolate, entire, permanent valves. Cor. of one petal, superior; tube very short, funnel-shaped; limb regular, divided to its very base into five nearly equal, somewhat spreading, concave segments. Stam. Filaments three, inserted into the mouth of the tube, erect, much shorter than the corolla, downy; anthers rather large, converging, oblong, cloven at the base. Fil. Ger. Germen roundish; style thread-shaped, erect, longer than the filaments; stigma three, deeply divided, equal, spreading, very slender, rather abrupt. Peric. Capsule roundish, membranous, tined, of three cells and three valves. Seeds several, globose. Eff. Ch. Sheath of two valves. Corolla with a very short tube, and equal regular limbs. Filaments downy. Stigma three, deeply divided, very slender. Capsule roundish. Seeds globose.

Off. The shortness of the tube, divided stigmas, and pubescent filaments, distinguishing this genus from U. (See that article.) The leaf character is but lightly perceptible, and the others may perhaps hardly be thought sufficient to separate plants so precisely alike in habit. We shall nevertheless enumerate the species as given by Mr. Ker, Glawer.

1. T. Bulbocodium. Channel-leaved Trichonema. Ker n. 4. Ait. n. 1. (Jxia Bulbocodium; Linn. Sp. Pl. 51. Willd. Sp. Pl. v. 1. 196. Jacq. Coll. v. 3. 265. Lc. Rav. t. 271. Curt. Mag. t. 265. Redout. Liliac. t. 88. Sm. Fl. Græc. Sibth. t. 30. Compend. Fl. Brit. ed. 2. 5. Engl. Bot. t. 2549. Dickc. H. Sicc. fæc. 18. n. 1: Sifyrinchium Theophrasti; Column. Echir. 328. t. 327. Focus verrucous; Ger. Emm. 153. t. 1.)—Leaves native of grassy hillocks, and sandy ground near the sea, in the south of Europe, from Jersey and Guernsey to the Archipelago, in which last country it is very abundant, flowering in March and April. We have no where seen this pretty plant more beautiful, with its numerous varieties, than on the hillocks around the celebrated fountain of Eggeria, near Rome. There all the different appearances of the flower, with respect to size and colour, which the above figures represent, and indeed many more, may be collected at once; nor can they fail to convince an observing botanist that they are no more distinct species, than our red or blue garden anemonies. The bulb is ovate, the size of a fibber, with many entire smooth coats. Leaves radical, recurved and widely spreading, narrow, smooth, silky. Stalks one or two, combined at the bafe, single-flowered, more or less curved, round, smooth, much shorter than the leaves, though considerably elongated after flowering. Sheath somewhat coloured. Corolla from one to two inches long, purplish, pale rose-coloured with a yellow bafe, or almost white in the border, always variously streaked; the backs of the three outer segments greenish; all the segments elliptical, but various in breadth. Capsule membranous, corrugated, purplish. We cannot separate Mr. Ker's refusum, for which he cites Curt. Mag. t. 265, however different that figure may, at first sight, appear.

2. T. cruciatum. Square-leaved Trichonema. Ker n. 3. Curt. Mag. t. 575. Ait. n. 2. (Jxia cruciata; Willd. Sp. Pl. v. 1. 197. Jacq. Ic. Rav. t. 290. Bulbocodium pedunculis nudis uniformis, foliis fabulatis linearius longifimis; Mill. Ic. 160. t. 2403; not 260, as in Hort. Kew. an almost unique error of the kind in the accurate Mr. Dryander, caused by the awkward roman numerals.)—Leaves linear, four-fided, with as many deep channels.—Native of the Cape of Good Hope. The leaves are more erect than in the former, various in breadth, but always known by their four-fided figure, displayed in a transverse section. The stalk is solitary, short and fimbrious. Corolla variable in size, pale crimson or purplish, streaked, externally green; its segments acute and recurved.


4. T. speciosum. Crinum Trichonema. Ker n. 5. (Jxia Bulbocodium, var. flore speciosiflorum; Andr. Rev. t. 170.)—Leaves linear, channelled, the length of the stem, which bears a solitary leaf near the top.—Native of the Cape of Good Hope, from whence Mr. G. Hibbert received its bulbs in 1805. These flowered in his garden at Clapham the following March. This appears most like to the first species in its leaves, except their being more erect, and fearfully exceeding the length of the stem. The latter, though fimbrious, bears one leaf near the top, according to Mr. Andrews, who is only by authority. We are aware that the European T. Bulbocodium, when it has two flowers, persists
bears also a leaf at the junction of their flanks. The flower of the present plant is uncommonly handsome, near two inches long, of a rich crimson; violet at the base; its three outer segments yellowish at the back, with crimson veins. The flower is narrow, green and leafy, leaves membranous, or coloured, than in most of the rest.

5. T. pudicum. This is merely mentioned by Mr. Ker, as the *Asia pudica* of Dr. Solander in Sir Joseph Banks’s herbarium, without any indication of its character or distinctions.

The able writers from whom we adopt this genus, indicate several European as well as African species, that remain hitherto undefined. Of the latter we have not sufficient materials to judge; but the probability of there being some such cannot be doubted. What we have seen of the European specimens would, however, render us much on our guard against those of exotic origin.

**TRICHONIUM**, in *Ancient Geography*, a town of Greece, in Etolia.

**TRICHOPHORUM**, in Botany, from πυδος, πυδος, a bristle, and σκις, to bear, because of the bristles encompasing the seed, in allusion to *Eriophorum*, (see that article,) out of which the present genus is extracted.—*Perfoon Encycl. v. 1. 60.* Pursh 57.—Clas and order, *Triandria Monogynia*. Nat. Ord. Calamiaria, Linn. Cypereides, Jull.

Gen. Ch. Cal. Spike, or Catkin, imbricated every way, with ovate, flat-tight, pointed, keeled, loose scales, differentiating the flowers. Cor. none. Stam. Filaments three, capillary; anthers erect, oblong. Pfij. Germen superior, roundish, very small; style thread-shaped, the length of the scale, deciduous; filaments three, elongated, reflexed. Peric. none. Seed solitary, beaked, ovate, triangular, with from five to nine capillary, wavy, brown bristles at the base, five times its own length. Receptacle cylindrical, cellular, and toothed.

Eff. Ch. Glumes chaffy, imbricated every way. Corolla none. Styline deciduous. Seed triangular, beaked, surmounted at the base with from five to nine hairs, scarcely longer than the spike.

Obf. The difference between this genus and *Eriophorum* confits in the comparatively small number of hairs surmounting the base of the seed, and their much shorter proportion, to say nothing of their brown hue. All these circumstances certainly give the *Trichophorum* a different, and far less brilliant, aspect. It is in fact more akin to various species of *Stirpus*, whose seeds are accompanied by short, flat, rough bristles.


2. T. alpinum. Alpine Hair-rush. Pursh n. 2. (Eriophorum alpinum; Michaux Boreal.-Amer. v. 1. 34.) —Stem naked. Spike solitary.—In bogs on the mountains of Pennsylvania, Vermont, &c. flowering in August. Perennial. Stem triangular, as in the first species, but quite naked. Leaves radical, few, leataceous, channelled. Mic-

chaux, Pursh. We have Newfoundland specimens from Mr. Frazer, which answer to these characters. If so, the spike consists of scarcely more than three or four flowers, and the bristles of the seed are about the length of the flowering tawny scales.

**TRICHOPUS**, from πυδος, a hair, and σκις, a foot-expulsive of the long taper flat of the capsule.—*Garten. v. 1. 44. t. 14.—Clas and order unknown.

Eff. Ch. Capsule inferior, membranous, with three wings, and three cells, not burbling. Seeds two in each cell, triangular, deeply notched.

1. T. zeylanicus. Bentula of the Cingalese, described by Garttner from the collection at Leyden. Capsule ovate, very thin, without valves, each angle extended into a wavy membranous border; each side marked with a longitudinal furrow; partitions from the centre of each valve, very thin; the base running down into a triangular flalk, gradually tapering to a fine capillary extremity. Seeds rufily-coloured, tawny, variously and deeply notched or lobed. Skin simple. Albumen conformable to the seed, with a longitudinal furrow, hard, cartilaginous, pale. Embryo very minute, in the lowest part of the albumen, monocotyledonous.

Garttner observes some affinity between this plant and the *Commelina* tribe, but the inferior capsule appeared to him to denote a very distinct genus, of which he could discover no traces in any author.

We do not perceive why the great length of the flalk was admitted by Garttner into the generic character, as the capsule being inferior, renders it a mere flower-falk. No following botanist has thrown any light on this genus.

**TRICHOPUS**, in *Ichthyology*, a new genus of fishes, described by Cepede from the MSS. and drawings of Commeron; the characters of which are, that the body is compressed, and that the ventral fins have an extremely long filament. Cepede has unnecessarily divided these fishes into two distinct genera, calling one “Ofphronemus,” and the other “Trichopus.” These fishes are natives of the Indian seas and rivers, and are distinguished, one species excepted, by the remarkable length of one ray of the ventral fins, which extends the whole length of the body, or even beyond it.

Species.

**GORAMY**; Rufescue Trichopus. With a silvery cast on the sides, and the second ray of the ventral fins extremely long; *Ofphronemus Goramy* of Cepede. Native of the fresh waters of China, where it is greatly esteemed as an article of food, and known by the name of “Goramy.” It is a prolific species, and easily introduced into new situations, having been imported into Java, and many other of the eastern islands.

**ARABICUS**; Greenish Trichopus. With violet and blue stripes, and second ray of the ventral fins extremely long; *Ofphronemus Goramy* of Cepede. Native of the fresh waters of China, where it is greatly esteemed as an article of food, and known by the name of “Goramy.” It is a prolific species, and easily introduced into new situations, having been imported into Java, and many other of the eastern islands.

**SATYRUS**; With sinking forehead, projecting chin, and extremely long, single-rayed ventral fins; *Trichopode Monotier of Cepede*. This fish is known in some countries by the name of “Goramy,” or “Goramy.”

**PALLAS**; Brown Trichopus. With pale undulations; a black spot on each side of the body and tail; and long single-rayed ventral fins. Described by Dr. Pallas as a species of Labrus, and by Kolreuter, in the Peterburg Transact. as a Sparus. See *Labrus Trichopus*.

**MONODACTYLUS**; Silvery Trichopus. With brownish back; and short, single-rayed, rigid ventral fins; *Monodactylus.*
dusty falciforme of Cepede, and described by him under the genus Monodactylus. Shaw’s Zoology, vol. iv. pt. 2.


Gen. Ch. Male. Cal. Perianth of one leaf, club-shaped, very long, smooth, with five small reflexed teeth at the mouth. Cor. of one petal, united with the calyx, flat, spreading, deeply divided into five ovate-lanceolate segments, fringed with very long, branched, capillary, spreading subdivisions. Stam. Filaments three, very short, crowning the rim of the calyx; anthers five, combined into a cylindrical upright body, marked all over with a line curved up and down in all directions, bearing the pollen.

Female, on the same plant, Cal. Perianth as in the male, superfi hirsute, Cor. as in the female, inferior, oblong, slender; fyle thread-shaped, the length of the calyx; stigmas three, oblong, awl-shaped, spiculating. Peric. Berry oblong, coated, of three widely separated cells. Seeds numerous, compressed, obtuse, tumi catted.


Female, Calyx with five teeth. Corolla in five deep segments, with a branched fringe. Style three-crested. Berry oblong.

1. T. anguina. Snake Hair-blossom, or Snake Gourd. Linn. Sp. Pl. 1432. Wildl. n. 1. Ait. n. 1. Curt. Mag. t. 722. (Anguina finenis, flore albo elegantissimo, &c.; Mich. Gen. 12. t. 9. Mill. 1c. t. 32. Curcubita finenis, fructu longo anguino, &c.; Tilla. P. 49. t. 22.)—Fruit cylindrical, elongated, incurved. Leaves heart-shaped, lobed, wavy, with little pointed teeth. Native of China and Cochinchina, according to Micheli and Louriezo. A tender annual in our flowers, whose seeds are often imported from the East Indies. The herbage is grazing, luxuriant, and much branched, like the rest of its tribe, with tendrilis, and broadish melon-like leaves, whose under surface is finely downy. Flowers in loose long-stalked clusters, conspicuous for their snowy white, and capillary or cobweb-like border, by which, in the warm littis of a flower, they seem suspended in the air, though the leaf breath might destroy them. The fruit, three or four feet long, and an inch or two in diameter, of a dark shining green, often marked with white, more or less coiled or undulated, his on the ground, partly shaded by the leaves, and has the appearance, at first sight, of a large snake. Hence Micheli took his generic name, which is most commodiously, as a specific one, made into an adjective.

2. T. ficora. Rough Hair-blossom. Louriezo. Cochinch. 589. Wildl. n. 2. (T. angustata; Lamarck Dict. v. 1. 190; Wildl.)—Fruit roundish, many-lobed. Leaves roundish-heart-shaped, rough, very rugged. Stalks fingleflowered.—Native of woods in Cochinchina, where it is called Dau nho tii. Stem thorny, many-furrowed, climbing by means of cloven tendrilis. Leaves alternate, reticulate. Flowers solitary, on simple axillary stalks, white, with a short fringe. Fruit small, red, roundish, with twelve lobes, and five cells. Seeds numerous, flat, oblong. This description of Louriezo does not, as to the fruit, answer well to the character of the genus; but that part is known to be the leaf uniform or conflant of any, in this tribe, even in the same species.

3. T. faiidiflora. Fetid Hair-blossom. Jacq. Coll. v. 2. 341. Tc. Rar. t. 624.—Fruit ovate, pointed, furrowed. Leaves oblong-heart-shaped, vilifid, nearly entire. Corolla fringed with simple teeth. Native of the coast of Guinea. Jacquins says it proved a greenhouse plant with him, flowering in summer in the open air. The root is perennial, tap-shaped. Whole plant vilifid and fetid like putrid flesh, or the Stapelia hirfuta, which odour adheres to the hands of any person who touches it. Stems one or more, annual, herbaceous, branched, leafy, rising by tendrils to the height of eight feet. Leaves drooping, hairy, stalked, from one and a half to three inches long; pales beneath. Flowers small, yellow; their border befit with brightly teeth. Fruit tawny, measuring with its beak about an inch and a half. Nothing can lefs anotifer to the idea of the original species than the present, nor ought they to rank in the same genus.

4. T. nervifolia. Rib-leaved Hair-blossom. Linn. Sp. Pl. 1432. Wildl. n. 4. (Tota-piri; Rheede Hort. Malab. v. 8. 337. t. 17. Raii. Hort. v. 3. 337.)—Fruit ovate, acute. Leaves oblong-heart-shaped, three-ribbed, toothed.—Found about Craganore, on the coast of Malabar, flowering in the rainy seafon. Stems slender. Leaves paler beneath. Flowers white, with a long entangled fringe. Fruit like a cucumber. A freezing medicine is made of the leaves, with garlic, supposed useful in the epilepsy. The juice of these leaves, mixed with some kind of oil, is used to anoint the temples of maniacs; to whom also a fummigation, made by a woolen thread dipped into the juice of the leaves and bruised fruit, and then burnt, is thought in India to be beneficial.


6. T. cucumina. Cucumber Hair-blossom. Linn. Sp. Pl. 1432. Wildl. n. 6. Ait. n. 2. (Padaevalam; Rheede Hort. Malab. v. 8. 30. t. 15. Raii. Hort. v. 3. 337.)—Fruit ovate, acute. Leaves roundish-heart-shaped, deeply lobed, angular, wavy. Native of sandy ground among trees, on the Malabar coast, flowering in June and July. Every part is fetic. Root widely spreading, fibrous, annual. Stems herbaceous, angular, hairy, not very harsh. Leaves soft and downy, divided down to the stalk. Flowers white, small, with a long entangled fringe. Fruit yellowish; the seeds lodged in red pulp. Prepared with sugar, this fruit is thought to help digestion, and cure pains of the stomatch and bowels, killing worms, promoting expectoration, &c. The juice of the root is purgative and emetic, useful in intermittent fevers.

7. T. amara. Bitter Hair-blossom. Linn. Sp. Pl. 1432. Wildl. n. 7. (Colocynthis florae albo simbriato, fructu oblongo; Plum. Amer. 86. t. 100. Raii. Hort. v. 3. 332.)—Fruit oblong-ovate, obtuse. Leaves heart-shaped, frutinate, rough; dotted beneath.—Gathered by Plumier, in the woods of Filipina, flowering in December, and bearing ripe fruit in April. The leaves are remarkably small, hardly an inch and a half in breadth or length, roughish, with
with minute points. Flowers white, as large as in T. angina, but with a simple, much shorter fringe. Fruit four or five inches long, and an inch and a half in diameter, contracted at the base; its rind thin, smooth, greenish, variegated; the pulp white and very bitter, with brown seeds.


10. T. pilosa. Villous Hair-bloom. Willd. n. 10. Ait. 8. (T. cominitula; Lamarck Dict. v. 1. 191.) Anguria frutica parvo, florum segmentis ramosis; Plum. Is. 14, t. 24.—Fruit elliptic-oblong. Leaves in three deep lobes; the lateral ones cloven; all entire.—Native of the West Indies. M. Thouin sent it in 1810 to Kew, where it blossoms in the Rove about June and July. The root is a huge, globular, perennial, tuberculated, fleshly mass, near a foot in diameter. Stems annual, climbing by simple tendrils. Segments of the leaves lanceolate, divaricated, two or three inches long. Flowers somewhat umbellate. Corolla with a longish rather fparing fringe at the end of each segment, if we may rely on Burman's copy of Plumier's figure. Willdenow has taken rather an unwarrantable liberty in changing Lamarck's printed names, of this and our fifth species; though in the present instance certainly for the better, the resemblance of horns, in the flower, being probably a deception.

11. T. latifolia. Jagged Hair-bloom. Willd. n. 11.—Fruit ovate, acute. Leaves heart-shaped, palmate, with five or seven lobes, toothed, smooth.—Native of the East Indies. Sent by Klein to Willdenow, who describes it with a smooth, flender, angular, climbing stem. Leaves two or three inches long, remotely toothed. Male flowers about fix together, in axillary corymbose clusters; with ovate toothed petals; femarae ones solitary, on axillary fläks; their petals fringed.

TRICHOSTEMA, fô called by Gronovius, from $\zeta_5\zeta \gamma_5\omega_5$, hair, and $\zeta_5\mu_5\sigma_5$, the flamen of a flower, alluding to the peculiarly long capillary filaments of the original species.—Linn. Gen. 300. Scheib. 397. Willd. Sp. Pl. v. 3. 170. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 3. 425. Pursh 414. Juff. 116. Lamarck Illutr. t. 515.—Clas and order, Didynamia Gymnophylma. Nat. Ord. Verticillae, Linn. Labiate, Juff.

Gen. Ch. Cal. Perianth inferior, of one leaf, twoflapped; the upper lip twice the largest, in three equal acute segments; lower in two deep acute segments. Cor. of one petal, ringent; tube very short; upper lip composite, fribate; lower in three deep segments, the middle one obovate, very small. Stam. Filaments four, capillary, remarkably long, incurved, two rather shorter than the rest; anthers simple. Pijl. Germin four-cleft; style capillary, the length and shape of the filaments; stigma cloven. Peric. none, except the enlarged, inflated, closed calyx, so reflexed that its upper lip becomes the lower. Seeds four, roundish.


Oft. It is necessary to note, that the above characters, as far as respects the flamen, agree with the specific definition of one of the two Linnaean species only. Linnaeus has left a manuscript remark, that "Adanson refers this genus to TRICHEUM;" see that article. He certainly does so, in his Familles des Plantes, v. 2. 188, like Dillenius; but in contradistinction to his own just character of the latter, comprising in the way of an upper lip.

1. T. dichotomum. Marjarom-leaved Annual Trichostema. Linn. Sp. Pl. 834. Willd. n. 1. Ait. n. 1. Pursh n. 1. (Trichostemma; Linn. Hort. Cliff. 493. T. flaminus longiflora exsertis; Gron. Virus. ed. 2. 90.)—Stamens very long, prominent. Leaves rhomboid-lanceolate. Flowering branches twice forked.—In fields and on funny hills, from Pennsylvania to Carolina. Annual, flowering in July and August. Flowers large, fine blue. The whole plant has an agreeable refractive scent. Pursh. Root fibrous. Stem a pan high, flat, round, or ovate, with opposite crossing branches. Leaves opposite, lanceolate, obtuse, entire, rough, the lower ones accompanied by axillary tufts of small leaves, or rudiments of branches. Flowering branches from the bases of the upper leaves, taller than the stem, crossing each other, and bearing a leaf similar to those just decribed. Each branch ends in a panicked form, with forked divisions, the proper flower-fläks single-flowered. Stamens fetaconis, very long; Calys reflexed after flowering. Linn. Hort. Cliff.

Pursh adopts from Walter, Fl. Carol. 164, a variety with linear leaves, called by that writer T. linear.

2. T. brachiatum. Self-leaved Trichostema. Linn. Sp. Pl. 834. Willd. n. 2. Ait. n. 2. Pursh n. 2. (Teucrium virginicum, origani folio; Dill. Elth. 389. t. 285.)—Stamens short, within the flower. Leaves ovato-lanceolate. Flowering branches opposite, paneled.—Native of Virginia, according to Dillenius. Mr. Pursh never knew this species in the Bankian herbarium, nor have we examined an authenticated specimen. The habit of the plant seems much like the last, but the leaves are more fellite. Dillenius's representation of the parts of the flower, though, doubtless, accurate, but ill agrees with the Linnaean generic description, nor are those parts far unlike those of a Teucrium. The flamen are strongly incurved, or involute, and therefore do not project out of the flower. We suspect this may not be a distinct species from the foregoing. Both require elucidation from American botanists.

3. T. spirale. Spiral Trichostema. Loureir. Cochinch. 371. (Cây râu meo of the Cochinchinse.)—"Stamens very long and spiral. Leaves ovate, acute."—Native of Cochinchina. Stem herbaceous, crect, square, four feet high, with opposite crossing branches. Leaves opposite, entire, downy. Flowers pale violet, in long terminal spikes. Corolla ringent, its upper lip fribate. Stamens very long, rolled up spirally, and retained within the corolla. Loureiro. This last character answers exactly to Dillenius's plate of T. brachiatum, to which Loureiro thought his plant nearly akin. Not having, probably, access to that plate, he did not discover how well it agreed, even where he thought the difference greatest.

TRICHOSTOMUM, from $\zeta_5\zeta_5\gamma_5\omega_5\zeta$, a hair, and $\zeta_5\mu_5\alpha_5$, the mouth, because the fringe of this mof is remarkable.

Eff. Ch. Capsule oblong. Fringe of thirty-two capillary straight teeth, approximately or united in pairs.

*Trichostomum* of Hedwig has, or ought to have, all the teeth of its fringe minutely connected together, at the very base, in pairs. The genera which the writer of this article first prefumed to reduce to the present, as above indicated, have distinct teeth, though those teeth nevertheless approach each other in a similiar manner. These genera differ among themselves in having separated or united flowers. None can be more naturally akin than they all are, and they have been distinguished by obscure and difficult, as well as unnatural marks. Of this so good a judge as Mr. Turner could not but be aware, and we are happy in having his concurrence. What is said under the article Dicranum of the general habit of that genus, is in a great measure applicable to this; except a remarkable difference in the aspect and texture of their fringes. This part in *Trichostomum*, instead of being broad, stout, tranversely furrowed, red, with pale points, is long, slender, and of even thickness and colour. The small and unbranched species of the two genera most resemble each other. The great branched hoary *Trichostoma*, com-prehended under *Bryum hypnoides* of Linnaeus, Hudson, &c. are least allied to *Dicranum*. We are not aware of any apphysiae, or glandular base, to the capsule, in the genus before us.

The species are commodiously disposed in two sections, distinguished by the separation or combination of their teeth. Eighteen are natives of Britain, which is about the number that Hedwig reckons up all together. We shall defererie the most remarkable.

Sec. 1. Teeth of the fringe all disting. at the base. Five British species.

_T. trifarium._ Three-ranked Fringe-mofs. Fl. Brit. n. 1. Engl. Bot. t. 1707. (Cynodontium trifarium; Hedw. Sp. Muc. 57. Swartzia trifaria; Hedw. Crypt. v. 2. 76. t. 28. Bryum trifarium; Dickf. Crypt. fac. 3. 8.)—Leaves lanceolate or awl-shaped, in three rows, keeled, entire. Capsule oval. Stem branched.—Native of barren billy ground. Dr. Abbot discovered it at Clapham springs, near Bedford. None but a differing botanist would distinguish this little moss from many others, far more common. The tufts are perennial, scarcely half an inch high, of a dull rufy green. Leaves with a strong, often reddish, mid-rib, but no brilily point; the lower ones broadest. Flowers terminal, each consisting of a few united flowers, and still fewer brown pills, of which latter one only comes to perfection. Fruit-flake hardly an inch high, rather wary, bulbus at the base, its lower half red. Capsule erect, fimm, of a thinning brown. Lid conical, slightly curved, scarcely so long as the capsule. Fringe paler in our specimens than in Hedwig's plate, but drawn rather too long in Engl. Bot.

_T. capillaceum._ Capillary Fringe-mofs. Fl. Brit. n. 2. Engl. Bot. t. 1152. (Swartzia capillacea; Hedw. Crypt. v. 2. 72. t. 26. Bryum capillaceum; Dickf. Crypt. fac. 1. 4. t. 1. f. 6. Fl. Dan. t. 1000. f. 1. B. alpinum; Linn. Hudf. 485, excluding the synonym of Dillenius. B. n. 1806; Hall. Hist. v. 3. 44. t. 45. f. 1.)—Leaves capillary, in two rows; beathing and dilated at the base. Capsule elliptic-cylindrical. Lid conical. Stems very densely tufted. Not uncommon in bogs on the mountains of Scotland, Wales, and the north of England, as well as Switzerland and Sweden, bearing capsules in April or May. Though figured by Haller, this moss was little understood by British botanists, when the writer of the present article gathered it on the Pentland hills, near Edinburgh, in May 1782, and communicated it to Mr. Dickson, to whom it was new. The flms are several inches high, very slender, rustly, crowded into dense and wide perennial tufts, foaked in water, and conspicuous for the delicate bright green of the fine capillary leaves which clothe their summer shoots. The numerous fruit-flakes, an inch and half or two inches long, red and shining, at length zigzag, are of an equally slender and delicate habit. Capsule erect, small, nearly cylindrical, thin, smooth, pale shining brown, darker or tawny at the edge, as is the small conical lid. Veil very slender. Fringe brownish, deciduous.

_T. papillosum._ Papillary Fringe-mofs. Fl. Brit. n. 5. Engl. Bot. t. 2333. (Bryum papillosum; Dickf. Crypt. fac. 4. 12. t. 11. f. 5.)—Leaves awl-shaped, keeled. Capsule elliptical, nearly erect, gibbous on the lower side at the base. Lid conical. Stem branched.—Found by Mr. Dickson alone, on turfy bogs, in the Highlands of Scotland. The flms are branched and level-topped about half an inch high. Leaves dark-green, slender, imbricated every way, entire. Fruit-flakes an inch or inch and half high, terminal, erect, red, with a cylindrical sheath at the base. Capsule red-brown, smooth, with a prominence, as a short spur, at the base, which renders this species very remarkable and distinct, but does not seem to be of the nature of an apphysia. The lid is conical, short. Teeth of the fringe certainly thirty-two.

Sec. 2. Teeth of the fringe connected in pairs at the base. Thirteen British species.

_T. lanuginosum._ Toothed Hoary Fringe-mofs. Hedw. Sp. Muc. 109. Crypt. v. 3. 3. t. 2. Fl. Brit. n. 8. Engl. Bot. t. 1348. (T. ferratum; Ehrh. Crypt. n. 94. Bryum hypnoides a; Linn. Sp. Pl. 1584. Fl. Dan. t. 476. B. hypnoides polycphalum, lanuginosum, montana; Dill. Muc. 372. t. 47. f. 32.)—Leaves lanceolate, with a pellucid toothed point. Capsule ovate. Stem procumbent, branched in a pinnate manner. This, a genuine specimen of the habit of a *Trichostomum*, is a very common moss in dry mountainous woods, and on caespitose rocks, stones, walls or heathen bearing capsules, though rarely, in autumn. The copiously branched, arching, clastic, leafy flms compose large light soft tufts, on which many a tried hunter or botanist has reposed. The leaves are of a dull yellowish-green, rendered hoary, when dry, by their flat white inflexed points, which are curiously bordered with short, broad, abrupt teeth, in a manner unlike every other species, and not ill resembling the cogs of a wheel. Fruit-flakes from the small branches, lateral, solitary, half an inch long, tawny, twilled when dry. Capsule erect, brown, smooth, thick and short, with an awl-shaped lid, and a pale reddish fringe. The well is conical, brown-pointed, splitting up in many different parts, not all at one side.

nelled, with a pellucid finely ferrated point. Capfule ovate. Stem erect, with very short branches.—One of the most landfome, as well as most rare, of its genus. Dr. Richar-
dfon originally sent it to Dillenius from the highest part of Snowdon. Two of our best British cryptogamists, Meffrs. Borrer and Hooker, found it in fructification, in 1808, on the fandy shores of the Tay near Dunkeld. The fronds are perennial, two or three inches high, eret, in loose tufts, leafy, fecondifdivided, and furnifhed moreover with abundance of short spreading branches, which give the plant that re-
semble to Erica vulgaris, expreffed in the name. Leaves deep green, or tawny; spreading and recurved, revolute, entire, keeled with a deep channel refembling a mid-rib, and tipped with a fine ferrated hair-like point, moft visible when dry. Fruit-flalks terminating the last year’s floots, about an inch and a half long, red, finally dark purple, twifled. Capfule eret, smooth, brown. Lid red, awl-
shaped, ftraight, nearly of the fame length. Fringe purple, almofl as long, ftraight and flider. Veil fringed with jagged teeth, not fplitting.

T. canuncbus. Common Hoary Fringe-mofs. Hedw. Sp. Mufc. 111. Crypt. v. 3. t. 3. Fl. Brit. n. 10. Engl. Bot. t. 2534. (Bryum hypnoidea s. Huds. 480. B. hypnoidea hirfutie canecibus, vulgaris; Dill. Mufc. 368. t. 47. f. 271) — Leaves ovato-lanceolate, with a central channel, but no nerve, and a pellucid rough point. Capfule ovate. Stem eret, with upright branches.—Very common every where, on open, dry, fandy heaths, or moors, both in mountainous and maritime situations, bearing capfules about February or March, but not frequently. The branches are more level-
topped and afcending than in the falt-described, and the leaves of a yellower green, becoming very hoary when dry, in confequence of their white points, rough in every direction. The want of a mid-rib in this species, though there is a furrup appearing like one, has been pointed out as a means of diftinguifhing it from the reft, efpecially from T. ericoides. But the fame character is found, as we have already defcribed, in that species; while fome of Dillenius’s precifions of the prefeft, very carefully examined, prove to have an actual rib. There are poffibly accidental fragments of another species. The prefeft certainly has no mid-rib, and has its capfule, fringe, and lid accord exactly with ericoides. The latter may be, as Hedwig thought, but a variety of this more common and lefs elegant kind. Whether there be any permanent difference in the rough-
nefs of the points of their leaves, which affords a clear dif-
tinction in T. languiufum, can only be determined by a more minute examination than our materials will admit.

habitant of dry rocky mountains in the North, bearing plenty of capfules in the fpring, whose empty blackened remains continue long. This species approaches feveral mountain kinds of Dicranum in habit, but is a genuine Trichophorum. The hoarifiefs of the old plants arifes partly from a whitifh hue afumed by the leaves in decay, and partly from their fecondarily pellucid edges; but not from any pellucid or hair-like point, the want of which renders T. fajiculare very diftinct from the three foregoing. Its fringe too is much shorter, and the leaves have a mid-rib.

T. glaucus. Glaucescent Fringe-mofs. Hedw. Crypt. v. 3. t. 123. t. 37. B. Fl. Brit. n. 14. Engl. Bot. t. 2381. (Bryum glaucus; Dickf. Crypt. fac. 4. 10.) — Leaves linear-lanceolate, acute, rather glaucous. Capfule ovate, slightly furrowed. Stem eret, somewhat branched.—Native of Sweden and Scotland, in which laft country Mr. Dickfon discovered this pretty and uncommon fpecies, growing in fhyer rather mountainous situations. We have not heard of it from any other perfon. The flesms compose perennial leafy tufts, scarcely half an inch high. Leaves eret, point-kefis, rather incurved when dry, of a light-green, flightly glaucous, entire, keeled, with a mid-rib; the upper ones molt elongated and tapering. Capfules peculiarly light-coloured and furring, with a purple fringe, and a con-
nical oblique lid, reddifh at the bafe, half the length of the capfule. The internal cavity of the latter does not reach to the bottom, which, as the thin outer coat of the capfule dries, caufes a contraction there, like an aphyfis, but of a very different nature. The fame appearance is obfervable in fome fpecies of Bryum with club-shaped fruit.

T. lineare. Linear-leaved Fringe-mofs. Fl. Brit. n. 17. Engl. Bot. t. 1598. (Bryum lineare; Dickf. Crypt. fac. 3. 6. t. 8. f. 2.) — Leaves linear-lanceolate, imbricated, acute. Capfule elliptical. Lid conical, oblique. Stem eret.—Native of Scotland, Wales, and Northumberland, in wet places, on a calcareous or fandy foil, bearing capfules in the fpring. Stems tufted, branched, perennai, an inch or more in height, clothed with dark-green leaves, which vary from an almoft linear to an ovate form, and turn either yel-
lofli or blackifh, from conftant immersion in water, or from its dripping upon them. Fruit-flalks red, an inch long. Very fmall. The apfeft of this mofs, efpecially when growing in a wet fhye place, is much like Dicranum pellucidum, and it has caufed fome miftakes by that means. Still more perhaps does it refeemble a Tortula, (fee that article,) but the short ftraight delicate fringe truly indicates a Trichophorum. The teeth, ftanding in pairs, are connected by one common bafe, according to Mr. Sowerby.

nanus.)

6. Fontanilis alpina; Dickf. Crypt. fac. 2. 2. t. 4. f. 1. (Hypnum nigricans; Villars Dauph. v. 3. 905. B.) — Leaves lanceolate. Capfules ovate, nearly fettle at the ends of the lateral floots. Stem feeding, very much branched. Native of rivers, in various parts of England, as the Thames at Lambeth, the Isis at Oxford, and the Oufe at Oakley, Bedfordshire. The mountain variety 6 inhabits the fliny beds of the more rapid freams of Scotland, Wales, and the north of England. Both are firmly attached to walls or ftones under water, their numerous tufted, branched leafy floms, four or five inches long, floating with the fream. The leaves are of a very dark dull olive-green, narrower and almost black in the variety 6, loosely imbri-
cated, lanceolate, entire, acute, keeled, with a frong rib; all undulated and twisted when dry. Capfules terminating the lateral branches, folitary, eret, ovate, brown, fmooth. Lid half as long, conical, rather curved. Fringe long, tawny or red, its teeth variously connected and pierced at the bafe, flightly convoluted when dry, foon falling off. The habit of this mofs is fo little like the reft of its genus, that we cannot but with the character of its fringe were more decidedly fufficient to eflablish a new one. The specific name moreover, though expressive, is barbarofly con-
struced.

Some species referred to *Trichofothum* by Hedwig, on account of the approximation of their teeth, we consider as *Grimmia*, because they have only fifteen teeth, not thirty-two. An instance occurs in *G. homomalla*, Fl. Brit. 1194. Eng. Bot. t. 1900, fo like *barnesomallia*, which immediately precedes it in these works, that they can hardly be distinguished but by the above minute character. We acknowledge indeed that the dwarf species of *Trichofothum*, in general, have almost entirely the habit of *Grimmia*. But the difference between the numbers fifteen and thirty-two, in their teeth, appears, by the analogy of other genera, a most certain and natural generic distinction. See *Grimmia*.

**TRICHIURU**, in *Natural History*, a term used by some authors to express such flies as have one or more hairs growing out at their tails: these are called *alfo feticuda*.

**TRICHIRUS**, the name of a stone described by the ancients, and said to yield three colours: in their common way of preparing bodies of this kind for medicinal use (which was by rubbing them down on a porphry or other hard stone with water), this first coloured the water black, then red, and lastly white. It seems to have been a kind of hematites, or blood-stone.

**TRICKANDORE**, in Geography, a town of Hindoostan, in the province of Tinewelly; 30 miles E.S.E. of Palamcottta.

**TRICKUT**, one of the Nicobar islands. N. lat. 8° 3'.

**TRICLARIA**, in Mythology, an epithet given to Diana, in Achaia; and Paufanias tells us (In Corint.) that Menalippos and Cometho gratified their luft in the temple of Diana Tricaria. This profanation, as it is said, was followed with a general barrenness, insomuch that the earth produced no fruit, and with an epidemic diemter, which swept away numbers of people. The Achaeans, having consulted the oracle of Apollo, were anwered by the priestesses, that the impiety of Menalippos and Cometho was the cause of all their calamities, and that the only way to appease the goddes was to sacrifice to her every year a boy and a young virgin.

**TRICLINÍUM**, in Antiquity, the name given by the Romans to the room in which they eat; and also to the beds upon which they reclined at meat, so called, because it was contrived to accommodate three persons.

**TRICOCCÆ**, in Botany, one of the natural orders among the *Fragmenta* of Linnaeus, where it ranks as the thirty-eighth, between the *Columniferae* and *Siliquose*, (see those articles,) though without having scarcely any affinity of characters or qualities with either. The name is derived from *trikoç* three, and *xoxoc*, a grain, or feed, and alludes to the form of the seed-veil, apparently composed of three combined lobes, each of which comprehends a single-seeded cell. (See *Dicoccus*.) We are not however to understand that every such seed-veil belongs to this order. *Thex* is one exception among several; while, on the other hand, some genera which do belong to it may have only two lobes to their fruit; witness *Mercarialis*; while *Plunkettia* has four, and *Hora* a much greater number. The valvæ are generally powerfully clasping, serving by that means to fasten the seeds widely, as soon as they are fully ripe.

The plants composing this natural order have alternate, molly simple, leaves, often furnished with glands. Their secrcted fluids are milky, and extremely acrid, their milk being a natural emulsion, of a most virulent reifin, or gum-refin, mixed with a watery liquid. The *calyx* and *corolla* have, as Linnaeus observes, always something unusual in their conformation, especially about the *necary*. The *style* is generally peculiar, being three-cleft, sometimes very deeply, and each branch again divided. Many of the genera have separated, either monocious or dioecious, *flowers*. The *fems* are either shrubby, sometimes very feby; or herbaeous, with annual or perennial roots.

*Euphorbia* is selected by Linnaeus to exemplify the order of *Tricoccæ*. No genus can be more natural or distinct, however different the habit, or herbage, of some of the numerous species from each other. According to the generally received idea of this genus, its *flowers* are simple or united, each having a *calyx* of one concave or inflated leaf, whose four or five marginal teeth bear as many abrupt, coloured, nectariferous glands. These latter, in some inances, as *E. corollata*, assume perfectly the appearance of petals. Yet Linnaeus was always much puzzled and surprized at the petals thus originating from the teeth of the calyx, of which he could scarcely find another example. Other peculiarities in this remarkable genus could not escape so accurately an observer, as the long stalk which elevates the germs out of the flower, and turns it to one side; and the progressive nature of the flower, as well as their anthers, which come forth in succession. The herbage too is remarkably various, arborescent and succulent, or herbaceous; spinous or unarmed; the leaves opposite, or alternate, or deficient. Two species having an irregular calyx, gibbous underneath, were separated into a distinct genus by Dillearius, under the faulty name of *Thymoloides*, but they are too naturally akin to the rest to justify such a measure.

Although the above is the generally received idea of *Euphorbia*, Jussieu, Gen. Pl. 386, has hinted that the flower is perhaps a compound one, consisting of a central female floret, with many monocious male ones, distinguished by chaffy scales, all in one common involucrium. Mr. Brown, in his very inductive Remarks on the Botany of Terra Australis, published at the end of captain Flinders’s Voyage, has confirmed this opinion, by an additional observation. He conceives what all authors have taken for a joint in each filament, to be in fact the separation of the filament from its footstalk; or in other words the base, or receptacle, of the flower, or floret, which is entirely distinct of a proper perianth and corolla; the female floret likewise having its foot-stalk, on whose dilated, sometimes obseously lobed, fuminit, the sefolle germens is placed. In support of this doctrine, it is suggested that the real filament is, as in other plants, produced subsequent to the formation of its anther, and of the flalk below the joint; their surfaces moreover, in some species, being different in nature. But the most conclusive certainty is given to Mr. Brown’s theory, by the discovery of a new genus, hitherto unpublished, having an involucrum nearly limalar to *Euphorbitis*, including several *fassiculii* of monocious male flowers, around a solitaire female: in this there is an obvious perianth, regularly divided into lobes, at the joint of each sepopped filament, as well as at that by which the germens is connected with its flalk.

The above idea of *Euphorbitis*, as a monocious genus, brings it nearer to the rest of this natural order, which have almost universally separated, either monocious or dioecious, flowers. At least such is the case with the genera properly belonging to it, and which constitute Jussieu’s order of *Euphorbitis*, or *Euphorbiaceae*.

**TRICOLLORI**, in Ancient Geography, a people of Gallia Narbonensis, whose whole capital was Alaracita; who occupied the territory of Siders.

**TRICOLONI**, or *Tricholos*, a town of Arcadia, N. E.
TRI

N. E. of Megalopolis. Here was a temple of Neptune, near it a sacred wood, and at a small distance a temple of Diana, venered by the Allobroges. Hannibal, having passed the Rhone, took his route on the left, through the country of the Tricaitini, and touching on the territory of the Vocontii, entered into that of the Tricori.

TRICOMIA, a town of Asia, in Phrygia Major.

TRICOR, a name by some of the chemical writers have called gold.

TRICORD, an ancient musical instrument with three strings. The first lyre of Mercury is supposed by many to have had but three strings. Most of the writers on music among the ancients, have supposed that the three sounds of this primitive lyre, were E, F, G.

Julius Polliux called the \( \text{pandora} \) or \( \text{pandura} \), the instrument with three strings.

The emperor Heliodorus, says Lampadius, furnished his Pharellia, and also by Livy and Polybius, in their account of the march of Hannibal. Livy says that Hannibal, having passed the Rhone, took his route on the left, through the country of the Tricaitini, and touching on the territory of the Vocontii, entered into that of the Tricori.

Ascending along the Rhone, he arrived on the fourth day of his march at the junction of a river with the Rhone, on the confines of the Allobroges, who inhabited the territory between these rivers. This river is called Scoras by Polybius, and Arar (the Saone) by Livy. Some critics, however, are of opinion that this name is erroneous, and that it was Iare.

TRICORNIS, in Anatomy, an epithet applied to the lateral ventricle of the brain. See Brain.

TRICORYNE, in Botany, from \( \text{tris} \) threes, and \( \text{kapos} \) a club, expressive of the three club-shaped feed-veils.


This genus ranges naturally between \( \text{Amorbeus} \) and Mr. Brown's \( \text{Cafea} \). The species are herbaceous, with fibrous, mostly perennial, roots. Leaves grassy, narrow. Branches, if any, accompanied by an interior \( \text{filipa} \) or \( \text{bractea} \).

Flowers umbellate, erect, yellow, their partial flanks having a joint at the summit. Corolla twisted as it fades, and soon falling. Seed-veils resembling coated nuts, one of them sometimes abortive, but rarely more than one.

1. \( \text{T. simplicia} \).—Stem undivided. Leaves flat, roughish at the edges. Umbel solitary, of from ten to sixteen flowers. Partial flanks three as long as the involucrum. Observed by Mr. Brown at Port Jackson, New South Wales.

2. \( \text{T. eliator} \).—Stem round, smooth, leafy; branches smooth, panicled, angular and flirated. Leaves flat. Umbels of from five to seven flowers. Native of the same country.

3. \( \text{T. scabra} \).—Stem round, biped, leafy. Branches panicled, angular and flirated, rough. Leaves flat, minutely toothed. Umbels of from five to seven flowers. Native of the tropical part of New Holland.

4. \( \text{T. tenella} \).—Stem slender, round, forked, smooth, leafy, fanky. Umbels of two or three flowers. Found by Mr. Brown on the south coast of New Holland.

5. \( \text{T. huepe} \).—Stem much branched, leafy, fanky, angular, smooth. Branches four-angled. Umbels of few flowers. Gathered by Sir Joseph Banks, in the tropical part of New Holland, and seen only in his herbarium by Mr. Brown.

TRICOT, in Geography, a town of France, in the department of the Oise; 13 miles N.W. of Compeigne.

TRICRANA, in Ancient Geography, an island situated on the coast and to the S.E. of the peninsula of the Argolid, having to the S. the island Arifera, to the N.W. that of Hydraea, and to the N. the promontory of Acra. Paufanias mentions this island.

TRICRATUS, in Botany, so named by the late Mr. L'Heritier, from \( \text{tris} \) three, and \( \text{kaps} \) power, or diffusion; perhaps in allusion to the three-fold affinity or resemblance of the plant, indicated by Juifieu, who remarks that it has the habit of \( \text{Valeriana} \), the flowers of \( \text{Pullus} \), and nearly the character of \( \text{Mirabilis} \). We still do not perceive any reason for Juifieu's original name, \( \text{Abronia} \), (from \( \text{alpha} \) pretty and \( \text{decalas} \) being superseded by the above. L'Her. Monogr. with a plate. Willd. Sp. Pl. v. 1. 807.


Gen. Ch. Cal. Periandria none. Cor. of one petal, inferior; tube funnel-shaped, inflated at the base, then suddenly constricted; limb shorter than the tube, flat, equal, in five deep, inerely heart-shaped segments. Nectary cup-shaped, of one leaf, enfolding the germen, and united with the inflated base of the tube. Stam. Filaments five, thread-shaped, unequal, shorter than the tube, to which they are united in their lower part, and inflected into the nectary; anthers oblong, within the tube. Pet. Germ. superior, roundish, embraced underneath by the nectary; style one, thread-shaped; stigma undivided. Peric. none. Seed. Nut elliptic-oblong, pointed at each end, five-angled, invetted with the hardened base of the corolla, of one cell.


1. \( \text{T. admirabilis} \). L'Heritier, as above. Willd. n. 1. (Abronia umbellata ; Lamarck Ilistr. 469, t. 105.)—Native of the sea-coast of California, where its seeds were collected by Mr. Colignon, a gardener who was sent out with La Peyrouse. These produced flowering plants in the Paris garden in 1788. The herbage is delicate, with several branches spreading on the ground; whether perennial or annual is not mentioned. Leaves simple, opposite, ovate, entire, on long stalks. Flowers in axillary, long-stalked heads, with an ovate \( \text{bractea} \) under each flower. Tube green. Limb of an elegant rose-colour. This little plant is perhaps the only fruit of La Peyrouse's unfortunate expedition.

TRICRENA, or Tricrina, in Ancient Geography, the name of three fountains, a place in Peloponnese, in Arcadia, E. of Pheneos.

TRICUSPID, in Anatomy, three-pointed, one of the valves of the heart, placed at the right auriculo-ventricular aperture. See Heart.

TRICORNÉ, in Natural History, a genus of bivalve shells.

TRIDAC-
TRI DA CTYLIA, in *Or nithology*, a genus of birds, separated by Dr. Shaw from *Picus*, on account of the number of toes; this having but three, whereas the genuine *Picus* are all furnished with four. Its generic characters are, beak, many-fided, straight, wedge-shaped at the tip; nodulets covered with aspicuous renicate feathers; and feet with only three toes, placed two before and one behind. The species are the following.

**Hirsuta**. Downy, varied with black and white. See *Picus Tristisculus*.

**Urdulata**. Waved, varied with black and white, in white. The southern three-toed woodpecker of Latham. First described by Biffon, and by him paid to inhabit Cayenne.

**TRIDAX**, in *Botany*, from γις, three, and δαμ, to bite, or wound, because of the three deep divisions of its marginal florets. Such is the explanation of De Theis, and it seems consonant with the meaning of *Linneus*; yet the latter in his *Philosophia Botanica* enumerates this word, which he considers as synonymous with ηδας, lettuce, among the old Greek names incapable of explanation. Possibly he had forgotten his original idea, between the writing of his *Hortus Cliffortianus* and the *Philosophia*; especially as he had not once seen the plant. Pliny speaks of *Ofreia triadacna*, a kind of vipers, so called because one of them was large enough for three bites, or mouthfuls.—Linn. Gen. 435. Schreb. 568. Willd. Sp. Pl. v. 2214. Mart. Mill. Dict. v. 4. Juff. 190. Gaertn. v. 2. 451. No figure.—Cliffs and order, Syngehes Polygramma—Samifus. Nat. Ord. Compos. fita opoifotolia, Linn. Corymbiferis, Juff.

Gen. Ch. *Common Calyx* cylindrical, imbricated, with ovate-oblong, sharpish, upright scales. Cor. compound, radiant. Florets of the dikk all perfect, tubular, funnel-shaped, erect, five-toothed; those of the radius female, ligulate, in three deep segments of equal length, the middle one narrowed. Stam. in the perfect florets, Filaments five, capillary, very short; anthers united into a cylindrical tube. *Pijf.* in the perfect florets, German oblong; style bristle-shaped, the length of the stamens; stigma obtuse; in the female ones, German oblong; style thread-shaped, the length of the corolla; stigma obtuse. *Peric.* none. except the permanent calyx. *Seeds*, in both kinds of florets, solitary, oblong. Down simple, rather longer than the calyx. *Recept.* flat, clothed with lanceolate chaffy scales, shorter than the seeds.


1. *T. procerum*. Procumbent Tridax. Linn. Sp. Pl. 1268. Willd. n. 1. Mill. Dict. ed. 8. (Tridax; Linn. Hort. Clif. 418. After americanus procumbens, folius incontinens et hirsutis; Houfouf's MSS.)—Gathered at Vera Cruz by Dr. Houfouf, who sent seeds to Miller. The latter cultivated this plant, in his back-flow at Chelsea, but it flowered sparingly, and seldom perfected seed. He sent a dried specimen to Clifton, which Linneus described, but there is none preferred in the Linnean collection, nor has any figure of the *Tridax* ever appeared. It seems to be herbaceous and perennial, propagating itself by the trailing *flans*, which throw out roots, and are hairy, clothed with opposite, nearly sessile, round, hairy, ovate *leaves*, an inch and half long, acute at each end, sharply ferrated, their lowest and largest ferratures, which are about the middle of the leaf, making a sort of angle at each side. *Flower-flanks* long, naked, siphon, at siph terminal, but afterwards becoming lateral. *Flowers* solitary, erect, pailih copper-coloured, or whitish; *Linneus erroneously supposed the radius to be yellow.*

**TRIDE**, in the *Manager*, signifies short and swift: thus a *tride pace*, is a going of short and quick motions, though united and easy. A *tride career* is a very fast gallop, with the times or motion short and nimble: and so of other motions. Some apply the word only to the motion of the haunches.

**TRIDENT**, *Tridens*, an attribute of Neptune; being a kind of sceptre, which the painters and poets put into the hands of that god. It is in form of a spear, or fork with three prongs, whence the word.

The poets tell us, that Neptune makes the earth open whenever he strikes it with his trident.

Mythologists give several reasons for affixing to Neptune the trident. Some say that it was designed to denote by its three points, the quality of the three lorts of waters that are upon the earth; those of the sea, which are salt; those of the fountains, that are sweet; and those of the ponds, that partake of both these qualities. Others say, that it alludes to Neptune's threefold power over the sea, which he troubles, affluage, and prefers. But without hunting after mysteries, it is sufficient to allow, that the trident was a kind of sceptre used by ancient kings.

**TRIDENT**, among *Mathematicians*, is used for a kind of parabola, by which Descartes constructed equations of six dimensions.


Female, at the base of the fame spike, *Cal. Perianth inferior*, of the structure of the male. Cor. none. *Pijf.* German superior, roundish; *styles* from fifteen to twenty, thread-shaped, longer than the stamens, collected into three bundles; *stigmata* thickish. *Peric.* Capsule roundish, bristly, of three cells and three valves. *Seeds* solitary, angular at the inner side, gibbous externally.


Female, *Calyx of five leaves*. Corolla none. Styles numerous, in three bundles. Capsule of three cells, with solitary seeds.


We cannot precisely reduce these plants to any known genus.
Trie, in Geography, a town of France, in the department of the Upper Pyrenees; 13 miles E.N.E. of Tarbe.

Tribe le Chateau, a town of France, in the department of the Oise; 3 miles W.N.W. of Chaumont.

Triebel, a town of Lower Lusatia, in the circle of Guben; 12 miles W. of Sorau. N. lat. 57° 36'. E. long. 14° 51'.--Alfo, a town of Saxony, in the Vogtland; 3 miles S.S.W. of Oelsnitz.

Triebschebach, a river of Saxony, which runs into the Elbe, near Meißen.

Triedrostyla, derived from 1τρίς, 1θρίς, 1θές, a side, and 1κολόν, a column, in Natural History, the name of a genus of sprints.

The bodies of this genus are sprints, in form of trigonal columns, adhering by one end to some solid body, and terminated at the other by a trigonal pyramid. Of this genus there are four known species. Hill.

Trieil, in Geography, a town of France, in the department of the Seine and Oise; 6 miles N. of St. Germain.

Trielen, a small island in the English Channel, near the coast of France. N. lat. 48° 22'. W. long. 4° 50'.

Triemerus, the three-day fly, in Natural History, a fly somewhat like the butterfly; it has four large yellowish wings, and a long body, with a head furnished with long antenna, large eyes, and a spiral trunk. It is found among the nettles and mallow.

Triemimeris, τριημερίς, semiteraria, a kind of cyathura in Latin verbe, in which, after the fifth foot of the verbe, there remains an odd syllable, which helps to make up the next foot.

As in, Ille latus nivem nulli subitus hyacintho.

Trienach, in Geography, a bay of the county of Donegal, Ireland, on the west coast. N. lat. 54° 53'. W. long. 8° 17'.

Triennial, an epithet applied chiefly to offices or employments which last for three years.

Thus we say, a triennial government; most regular monasteries have triennial superiors; that is, they elect new ones at the end of each three years.

In 1695, an act was made for triennial parliaments, i.e. for parliaments which should be dissolved, and the members elected anew, every three years. Till that time, the king had it in his power to prorogue and continue his parliaments as long as he pleased. This opened a door to corruption, which the triennial bill was intended to prevent.

The triennial act has, from some other views, been since repealed; for the great struggles usual at elections, the great ferment it usually put the nation into, the great expenses upon that occasion, with other considerations, determined the legislature, in 1717, to change triennial parliaments for perpetual ones. See Disolution of Parliament.

Triens, in Antiquity, a copper money, of the value of one-third of an ac, which on one side bore a Janus's head, and on the other a water-rat.

This was the piece of money used to be put in the mouths of the deceased, to pay Charon his fare for their passage into another world.

Triens, or Triental, was also used for a drinking cup; and that which was ordinarily used. It contained four cyath.


Gen. Ch. reformed. Cal. Periathium, inferior, of about seven linear-lanceolate, pointed, spreading, permanent leaves. Cor. of one petal, star-shaped, flat, in seven deep, ovato-lanceolate segments, alternate with the calyx, very slightly connected. Stam. Filaments seven, capillary, inserted into the base of each segment, spreading, the length of the calyx; anthers simple, as before. Gyn. fr. with rigid spreading style, thread-shaped, equal in length to the stamens; stigma capitata. Peric. Capsule ovate, of one cell, and as many ovale, rigid, cartilaginous, thick-edged valves as there are calyx-leaves, and opposite to them, highly polished internally. Seeds several, nearly orbicular, convex externally, angular within, blackish, dotted, each enveloped in a snow-white, finely reticulated, combined, membranous tunic. Recept. central, globose, very large, with a cavity for each seed.


Obf. Linnaeus remarks that feven is the moft usual number in the parts of fructification, though sometimes liable to vary. He adds, that the fruit is a dry berry, not burling with valves like a capsule. So Gaertner likewise represents this fruit; and as botanists have hardly feen it, they have, like ourselves, adopted the opinions and defcriptions of these great writers. Yet nothing is more certain, if we may believe our eyes, than that the fruit of Trientalis from Scotland, lies above fetter, four or five inches high; it is freven-edged, equal in length to the flames; stigma capitata. Peric. Capsule ovate, of one cell, and as many ovale, rigid, cartilaginous, thick-edged valves as there are calyx-leaves, and opposite to them, highly polished internally. Seeds several, nearly orbicular, convex externally, angular within, blackish, dotted, each enveloped in a snow-white, finely reticulated, combined, membranous tunic. Recept. central, globose, very large, with a cavity for each seed.


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1. T. europa. European Chickweed Winter-green. Linn. Sp. Pl. 488. Fl. Lapp. ed. 2. 109. Willd. n. 1. Brit. n. 1. Engl. Bot. t. 15. Fl. Dan. t. 84. (Herba trientalis; Bauh. Hist. v. 3. 556. Pyroa alines flore major; Bauh. Prodr. 100; copied in Morifon, fect. 12. t. 10. f. 6.)—Leaves elliptical.—Native of turfy heaths, or of woods on the fides of hills, in Scotland and the northern countries of Europe, as well as some parts of the north of England, flowering in May and June. The perennial root is slightly tuberous, with many long whitish fibres. Stem simple, rigid, or five inches high; it is almost naked, except at the top, where it is crowned with a tuft of nearly sessile, bright green, smooth, entire leaves, delicately veined, an inch and half or two inches long; tapering at the base; more or less blunt at the extremity. Among them are several axillary, capillary flaks, about the fame length, each bearing a very pretty and delicate white flower, with yellowish, or pale pink, petals and stigma. Linnaeus was particularly fond of this plant, and has celebrated its "faceinating beauty" in his elegant and eloquent Flora Lapponica.

TRIESTE, See TRIESTE.

TRIESTY, mountains in the north-western part of the county of Mayo, Ireland, near the Mullet, and immediately north of Tullaghan bay.

TRIETERIA, in Antiquity, Alps which the Bochoutians and Thracians held every three years in honour of Bacchus, and in remembrance of his expedition into India, which lasted three years.

TRIETERIS, in the Ancient Chronology, a cycle of three years.

Thales, it is said, observing that the lunar revolution never exceeded thirty days, appointed twelve months of thirty days each; so that the year consisted of three hundred and sixty days: and in order to reduce these months to an agreement with the revolution of the sun, he intercalated thirty days at the end of every two years, whence that space of time was called a "period of three," because the intercalation was not made till after the expiration of full two years, though really it was only a period of two years; as we are informed by Conforinus, De Die Natali, cap. 18.

TRIEWALD, Martin, in Biography, an eminent mathematician and engineer, was born at Stockholm in 1691, and being intended for trade, he travelled to England for information and improvement on subjects that concerned his commercial pursuits. Disappointed in prospects of this kind, he changed his object; and was fortunately engaged by the proprietor of some coal-mines near Newcastle to superintend the machinery of his works. This situation corresponded to his genius and inclination; and he was thus led to pay particular attention to mechanics, both in theory and practice. In 1736 he returned, after an absence of ten years, to his native country, where he continued a steam-engine and read lectures in philosophy, illustrated by a course of experiments, similar to those of Defaguiries, which he had attended in London. He thus attracted the notice of the king and of the States, who conferred upon him a pension, with the title of director of machinery. He also proposed some improvements in the manufacture of iron and steel. Thus diligently and actively employed for the benefit of his country, he received a commision as captain of engineers and inspector of fortifications; and he invented various machines connected with those offices, models of which are preserved in the Academy of Sciences at Stockholm and also in the Academy of Lund. Diving was also an object of his attention, and on this subject he wrote a treatise, entitled "On diving under water," Stockholm, 1741, 4to. (See Diving-Bell.) For this invention he received honorary rewards both from his own sovereign and the king of France. In 1729 he was elected a member of the Society of Upfal; and the same honour was conferred upon him by the Royal Society of London and other learned bodies. Triewald died suddenly in 1737. He communicated various papers to the Academy of Sciences at Stockholm, which appear in its Memoirs for the years 1739, 1740, and 1747. Beckman's Hist. of Inventions. Defaguiries' Philos. Gen. Biog.

TRIXAHEDRIA, formed of tet, thrice, xi, fax, and xel, in Natural History, the name of a genus of fishs.

The bodies of this genus are perfect and pellucid crystalliform fishs, having composed of thrice five planes, being composed of an hexagonal column, terminated at each end by an hexagonal pyramid: of this genus there are three known species. Hill.
TRIFALTIGKERT, in Geography, a town of Prussia, in Natangen; 16 miles S.S.E. of Königberg.

TRIFAX, among the Romans, a jujube three cubits long, which was thrown by the catapulta.

TRIFELS, in Geography, a citadel of Javann, in the department of Mont Tonnerre. Here Richard I., king of England, was kept, when he appeared before the diet of Worms; 1 mile S.E. of Anweiler.

TRIFOLIA STRUM, in Botany, Baltard Trefoil, a name given by Micheli, Nov. Gen. Pl. 26. t. 25, to such species of Trifolium as have their legume projecting beyond the calyx, which he, on that account, separates from thence. Neither the character, nor the name, has been adopted by the following writers. See Trifolium.


Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, five-toothed, permanent. Cor. papilionaceæ, with long, more or less, mostly permanent, withering; standard reflexed; wings shorter than the standard; keel of one petal, shorter than the wings. Stam. Filaments two, distinct, one simple, one in nine segments; anthers simple, roundish. Fil. Germenis oblong-ovate; styleawl-shaped, ascending; stigma simple, smooth. Peric. Legume short, of one valve, and one cell, not burting, scarcely exceeding the calyx in length, deciduous. Seeds one to four, roundish.


All botanists have perceived the difficulty of defining the technical characters of this genus, and yet none can be, in itself, more natural. Linnaeus reckoned it the most difficult in the whole vegetable kingdom to discriminate by any efferential mark. He comprehends under Trifolium, as may be seen above, various other genera of good systematic writers, differing among themselves as follows. Melilotus of Tournefort and Jussieu, has a legume longer than the calyx, with loosely spiked flowers; Triphylloides of Michell, a legume longer than the calyx, with capitae flowers; Lupinus of Buxbaum, a legume with several feeds, and five leaflets in each legume of Rivinus, a permanent corolla, whose standard is infixed and flatish, ribbed or plaited; Lagopus of the fame author, a flatish calyx, equal in length to the corolla; and finally Triphyllides of Pontedera, has a monopetalous corolla, the standard wings and keel being all united into one tube; which is likewise the case with a great many more species than this author, or Linnaeus, has indicated.

Linnaeus admitted the inflorescence as a part of his natural, and even his essential, character of this genus, defining it as "a little umbel or head." He was always very unwilling to adopt this measure, and we presume to think he has, if no cafe, referred it to with advantage. In the present it is neither correct nor discriminative, scarcely any species being really umbellate, and though many are capitate, as many are spiked, while several are racemose. We have therefore followed the example of Jussieu, who in this influence willy lays aside the inflorescence; attempting a more full and explicit character from the parts of fructification themselves.

In natural affinity the present genus comes nearest to Tri- conella, which will presently follow in alphabetical order. Some of the Meliloti especially, closely accord therewith, both in characters, habit, and qualitative parts only in an upper and cutaneous, allied to those of new hay and bitter almonds, moist powerful, and very permanent, in the dried herbage. Some compare it to the smell of a pig-flye. The Blue Melilot, and Common Fenugreek, poiffes this odour in the greatest perfection.

Trifolium is a very extensive genus. Linnaeus has forty-fix species in the fourteenth edition of his Systema Vegetali um; Willdenow has seventy-two in his Sp. Pl.—Eighteen are natives of Britain. Fifty-fix are enumerated by Mr. Aiton in his Hortus Kewensis. We have three to add from the Prodr. Fl. Græc., two or three American ones of Mr. Pursh, and a few from other sources. It is necessary to take a view of the whole, partly for their more correct botanical distinction, though in general they are better defined than the species of moly, equally extensive and natural, genera. A correct knowledge of these plants is supremely important to the agriculturist; because the qualities of some, very near in external appearance, differ widely in utility; and because there are many, hitherto little observed, which promise to be as valuable as any of the species. Some of these are known and cultivated in other countries, and others may be well worthy of trial. Unless they are first accurate distinguished, nothing respecting them can either be perfectly understood, or clearly communicated.

The species are distributed into five very natural sections, and all are herbaceous. Some in each section are annual, others perennial. The fems are branched. Leaves alternate, more or less flat, of three, moistly obovate, and equal, toothed or entire, rarely linear, leaflets, with a pair of membranous ribbed stipules united to the base of the footstalk. Inflorescence terminal or lateral, generally flat, either tufted, capitate, spiked or racemose. Flowers red, purple, white or yellow; sometimes, though rarely, fragrant.

Sect. 1. MELOLITI. Legumæ projecting beyond the calyx; with several feeds. Flowers racemose.

1. T. ceruleum. Blue Melilot Trefoil. Linn. Sp. Pl. 1077. Willd. n. 1. Ait. n. 1. Bieber. Taur. v. 2. 267. (T. odoratum; Ge. Em. 1195. Melilotus ceruleus; Rivin. Tetrap. Irr. t. 9. Lotus fylveficus; Camer. Epit. 894; not 724, as in Wild. and Ait. after Linn.; the latter being T. arvensis. A good coloured figure wanting.)—Chaffers roundish-ovate, long-flat. Legumes half-naked, beaked, with flight longitudinal ribs, and two seeds. Stem erect. Stipulas entire. —Native of Bohemia, Tauria, Germany, &c. in dry barren ground, flowering in summer. Cultivated in our gardens, for curiosity, ever since the time of Turner, Gérarde, &c. The root is annual, fibrous. Stem two or three feet high, smooth, angular, leafy, scarcely branched. Leaflets pale, elliptical, toothed, an inch long, smooth; the odd one flat. Flowers pale blue, in numerous, solitary, long-flat, axillary heads, all the way up the stem. The whole plant, either fresh or dried, has a sweet liquorice-like scent, falling a great
Ait. Ait. Ait. Ait.

2. T. indicum. Indian Melilot Trefoil. Linn. Sp. Pl. 1077. Wildl. n. 2. Ait. n. 2. (Melilotus lutea Indica orientalis erecta, foliis rotundis parvis, spicis florum ex foliorum alis multiplicatis; Pluk. Phyt. t. 45. f. 4.)—Cluffers cylindrical. Legumes narrow, strongly reticulated, fingle-feeded, obtuse. Stem erect. Stipulas nearly entire.—Native of the East Indies. Cultivated at Oxford before 1680. Annual, flowering in summer. Smaller and more flender than the foregoing, with long slender clusters of small, yellow, drooping flowers. The leaflets also are smaller and narrower. Legumes not much bigger than mustard-seed, turbid, pale, roundish-elliptical, strongly corrugated, with a fort of elevated net-work, and tipped with the capillary fyle, not properly beaked. Such is the Linnean plant, which does not agree with Wildenow's definition. We cannot answer for the varieties enumerated in Sp. Pl. Some are said to have white flowers. The yellow fades greatly in what we have examined, before the corolla falls. Wildenow has in his Enumeratio, 759, distinguished the β, which is Pluknet's-t. 45. f. 5, as a species, by the name of Melilotus rugulosa.

3. T. juckensteinei. Sicilian Melilot Trefoil. Linn. Mant. 275. Suppl. 339. Wildl. n. 3. Ait. n. 3. Sm. Fl. Græc. Sibth. t. 741, unpublished. Desfont. Atlant. v. 2. 104. T. frutico racemoso, Borec. Mus. 163. t. 134. Melilotus juckensteinei procumbens, foliis rugulis sublongis, spicis florebus rufi; Rais Hist. 952. Tourn. Infl. 407. Minima recta lutea, siliquæ crisulae currit in capitulum conglutinis, femine flore naturali; Moris. v. 2. 162. f. 2. t. 15. f. g. t. 16. f. 9, very good.)—Clutters shorter than the leaves. Legumes narrow, ovate, pointed, with crowded, concentric, interbranching ribs, single-feeded. Stems decumbent.—Gathered by Ray, in a moist situation, on the tongue of land separating the port of Messina from the fratts of Sicily. Professer Desfontaines met with it in fields in Barbary; and Dr. Sibthorpe in cultivated ground every where throughout Greece. It there bears the name of τίτικα, which belongs indeed to moss of this genus, in modern Greek. Dr. Sibthorpe judged it to be the same plant of Dioscorides, point equally difficult to disprove or establish. This species is little known in our gardens, though cultivated in Morison's time, whose figure cannot be mistaken. The root is said to be annual, though furnished with many little fleshy granulations, to enable it to refit occasional drought, such as occur in Vicia labiroides, and other annual vetches. Stems several, a foot long, diffuse or procumbent, the central one only being erect, all stout, smooth, leafy, scarcely branched. Clusters axillary, oblong, hardly longer than the common footstalks, each on a short stalk, and composed of ten or twelve yellow flowers, twice or thrice as large as the leaf. The leaves are not very different. Legume one-third of an inch long, peculiarly disfigured by its ovate, oblique, pointed, somewhat compressed, figure, and especially the numerous concentric elevated lines, like coil'd horse-hair, more or less interbranching in the middle, which occupy its fides. The luxuriance in the herbage, and the nature of its root, indicate this plant as worthy of agricultural experiment, though its precumbent mode of growth may be an objection to the mower. It is certainly very different from Mr. Sinclair's T. macrorhizum, Hort. Gram. Woburn. 290, of which we propose to speak under T. officinalis.

4. T. mauritianum. Barbary Melilot Trefoil. Wildl. n. 4. Ait. n. 4. Sm. Fl. Græc. Sibth. t. 742, unpublished. (Melilotus fucata; Desfont. Atlant. v. 2. 193.)—Clutters longer than the leaves. Legumes naked, nearly orbicular, obtuse, pointeles, with concentric elevated ribs, single-feeded. Stems diffuse.—Native of cultivated fields in Barbary and Sicily; very abundant about Messina, according to Signor Arrodi. There can be no doubt as to the synonym of Desfontaines. We have not seen the work of Schoubeoe, cited by Wildenow. This is an annual species, with numerous branching diffuse floras, but more flender in every part than the last. Leaflets elliptic-lanceolate, obtuse. Flowers yellow, small, very numerous, in long, flender, linear, long-filaked clusters, much exceeding the leaves. Legume hardly so big as in T. indicum, formed as it were of a convoluted line or hair, some-what in the manner of the leaf, but the whole legume is not a quarter so long, nor has it any elongation or point. These two species have, nevertheless, been confounded by botanists, for want of a good figure of the prent, which deficiency the Flora Græca will supply.


6. T. polonicum. Polish Melilot Trefoil. Linn. Sp. Pl. 1078. Wildl. n. 6. Ait. n. 6.—Clutters lax, on very long flanks. Legumes naked, two-feeded, lanceolate, pointed, transversely corrugated. Stem erect. Leaflets pointed, nearly entire.—Native of Poland. Sent to Kew garden in 1788, by M. Thouin. A very diffident annual species, of a flender habit. Stem quite round. Leaflets obovato-lanceolate, acutely pointed, rather silky, and somewhat glaucous, almost perfectly entire; the odd one hardly an inch long. Flowers yellow, daintif, small, on long and flender partial flasks; their common ones at least twice the length of the leaves. Legume rather compressed, pendulous, a quarter of an inch long, beaked, and tipped with the fyle, not hairy.

7. T. spicatum. Spiked Melilot Trefoil. Sm. Procr. Fl. Græc. Sibth. n. 1783. Fl. Græc. t. 745. unpublished.—Legumes naked, single-feeded, spik'd, erect, corrugated, acute. Stipulas awl-shaped, entire. Stem erect.—Gathered by Dr. Sibthorpe, in the isle of Cyprus. Root annual. Stem less than or eighteen inches high, and Leaflets obovato, toothed, half an inch long. Spikes flaked, about as long as the leaves, consisting of yellow, deflexed flowers; when in fruit becoming twice as long, more lax, and somewhat racemose, the legume being slightly flaked, erect, roundish-obovato, with a short broad point, tipped with the capillary white fyle; their fides marked with concentric elevated corrugations. Seed globose.

8. T. dentatum. Toothed Melilot Trefoil. "Waldit. et Kitab. Hung. v. 1. 41. t. 42." Wildl. n. 7. Ait. n. 7.—Legumes racemose, naked, two-feeded, somewhat rugose, rather acute. Stipulas toothed at the base. Stem erect.—Native of moift meadows in Upper Hungary. Perennial. Abundantly different from the officinalis, the leaflets being sharply and double toothed; the fipulas also toothed, and deeply divided at their base. Wildenow.

cultivated fields, on clay or marle, throughout Europe, flowering in June and July. Not rare in England. Dr. Sibthorp met with it in moist low situations, throughout Greece and the Archipelago, and confirmed the old opinion, of its being the Melilotus of Dioscorides. From this old Greek's venerable authority the plant has long been esteemed medicinal, but is now out of use; nor is it cultivated, with us at least, for any agricultural purpose. The seeds, even in a very small quantity, poison the flavour of flour. (Martin. Sinclair.)

The root is annual. Stem branched, two or three feet, or more, in height, angular and furrowed. Leaflets dark green, smooth, obovate, serrated. Flowers full yellow, veiny, in long dense clusters. Keel and wings equal, and nearly as long as the standard. Legume hairy, tranfverfely wrinkled, but not very strongly. Stigma capitate.

Mr. Sinclair's specimen named T. macrofibra, in his elaborate and very valuable agricultural work, the *Hortus Graminibus Woburnensis*, 291, does not exhibit any marks of specific difference from the officinal, of which however it appears to be an important variety, differing in its biennial root, larger leaflets and flowers. The seeds are two in each legume, never, as is sometimes the cafe with the officinal, more than two. It produces a great crop of fodder, or hay, at the time of flowering, but little afterwards. If kept from flowering, the root will last four or five years. Such is Mr. Sinclair's account, who nevertheless affords to our opinion of its being a variety. We have no means of ascertaining whether this may be Willdenow's *macrofibra*, our n. 5, but it does not answer to his character. We can vouch for its being widely different from *seif-anen*, n. 3. Can it be Willdenow's officinale ?

10. T. germanicum. White German Melilot Trefoil. (T. officinale β; Willd. n. 8. Sm. Prodr. Fl. Græc. Sibth. v. 2. 94. Melilotus; Rivin. Tetrap. Irr. t. 6: M. germanicus; Ger. Em. 1205. M. vulgaris; Willd. Enum. 790. M. officinarum germanicus, flore albo; Tour. Infr. 407. Lotus sylvætris, flore albo; Tabern. Kreuterb. 893.)—Legumes racemose, naked, fingle-fed, corrugated, obovate, acute. Stipulas fetaceous. Stem erect. — Native of cultivated fields in Germany. Dr. Sibthorp observed it near Theffalonica. Root biennial. Stem taller than the leaf. Flowers white. Wings longer than the keel, though shorter than the standard. The figure of Rivinus answers better to this description than to our common T. officinale, and was probably taken from what is the moft ufual German plant. We have never compared specimens, but must obferve, that the stipulas are fometimes perfectly fetaceous in our officinal. — Gerard feems to have been well acquainted with the *germanicum*, as was also his editor Johnson.


13. T. italicum. Italian Melilot Trefoil. Linn. Sp. Pl. 1078. Willd. n. 9. Ait. n. 9. (Melilotus italicus; Camer. Hort. 99. t. 29, excellent. Willd. Enum. 790. M. filicus pendentibus, curvis, latea, &c.; Morif. fib. 2. t. 16. f. 4.)—Legumes racemose, naked, two-fed, elliptical, obtuse, strongly corrugated and crisp. Stem erect. Leaflets roundish-ovate, nearly entire.—Native of Italy, Barbary, and Greece. Dr. Sibthorp gathered it on the dry parts of the famous mount Hymetthus, near Athens. This species has long been cultivated in curious gardens, both in England and the continent. Gerard describes it under his Melilotus, n. 2, but the figure does not agree. The root is annual. Stem flat, angular, leafy, about two feet high, overtopped, as the fruit advances, by the numerous, elongated, upright, cylindrical clusters, of pendulous, roundish-elliptical legumes, each as big as a small pea, conspicuous for their strong, prominent, zigzag, and plaited wrinkles, by which the present species is clearly distinguished. Its leaflets moreover are of a much broader and rounder figure than any of the foregoing, rather wavy than serrated. Stipulas ovate, taper-pointed, toothed. Flowers yellow. Dr. Sibthorp conjectured, with great probability, that this might be the kind of Melilot, mentioned by Dioscorides as growing in the fouth of Italy, about Nola, of a yellowish colour, and weaker scent.

14. T. hamatifum. Hooked Melilot Trefoil. Bieberift. Taur. v. 2. 207. (Vaccinargium melioti facie minus; Buxb. Cent. 2. 39. t. 44. t. 11) — "Legumes racemose, naked, compressed, fingle-fed, ribbed, hairy, with a hooked point. Stipulas awl-shaped, undivided. Stems erect and floping."—Gathered by the chevaher de Steven, in Georgia, and the southern part of Tartary. "The root is annual, fimple. Stems ferval, from three to nine inches long, rarely more, flightly branched. Clusters axillary, falked, fhort and fomewhat capitate. Flowers yellow, the fize and shape of T. officinale. Calyx hoary. Legume ovate, deflexed, hoary; smooth at the base; terminating in a long inflexed point. Seed kidney-shaped, of a dirty yellow. Leaflets wedge-shaped, sharply toothed. Stipulas fmall." We have been no fpecimen.

15. T. creticum. Cretan Melilot Trefoil. Linn. Sp. Pl. 1078. Willd. n. 10. Ait. n. 10. (T. peltatum creticum; Bauh. Pin. 329. Prodr. 142, with a figure. Morif. fect. 2. t. 14. f. 3.)—Legumes racemose, naked, two-fed, membranous, compressed, bordered, nearly orbicular. Stem ascending.—Native of Crete, Greece, and Barbary. Root annual. Stem branched, twelve or eighteen inches high. Leaflets broad, thick and fethy, like those of T. italicum, bordered with fallow-toothed, inodorous. Flowers pale yellow. Legumes very remarkable for their broad, elliptical, nearly orbicular, flattif figure, half an inch in diameter, in loose clusters, two or three inches long. They are reprefeented much too turgid in the above engravings, especially in Morifon's.

16. T. orthopodioides. Bird's-foot Trefoil. Linn. Sp. Pl. 1078. Willd. n. 11. Fl. Brit. n. 2. Engl. Bot. t. 1047. Curt. Lond. falc. 2. t. 53. Fl. Dan. t. 368. (Vaccinargium humile repens, orthopodioidei filiquis brevibus erectis; Rau Syn. 331. t. 14. f. 1.)—Legumes about three on a falk, naked, eight-fed, twice the length of the calyx. Stems procumbent.—Native of England, France, and Denmark, on barren gravelly heaps, among short grafs, flowering in June and July. The fibrous annual root is furnifhcd with fibrous tubercles, fuch as are mentioned under n. 3. Stems mostly fimple, defpeffed, two or three inches long, clothed with little leaves, refembling many of the third fectton, the falks of the leaflets being all equal; and neither they, nor the flender pale-purple flowers, two or three on each fhort axillary falk, having any affinity to the Meli-
TRIFOLIUM.

Melliti, with which the present species is associated entirely on account of its many-seeded, tranferably furrowed, prominent, bivalve legumes, which moreover are umbellate, not racemose. This species therefore connects the Melliti by its fruit, with the true Trefoils by its habit, stipulas, inflorescence, &c. We should gladly have retained the genus *Mellitus*, adopted of late, from preceding writers, by Willdenow in his *Enumenrio Plant. Hort. Berol.* had we found his generic characters faithful. These are the decidual corolla, and the burling legume, longer than the calyx. But the legume of most of the *Mellitus* does not burst, any more than that of a genuine *Trifolium*. Their general habit indeed, and their peculiar odour, agree far better with *Trigonella*, (fee that article,) than with *Trifolium*.

Sect. 2. Lotoidea. Legumes covered by the calyx; with several seeds.

17. T. L. apinafter. Baflard-lupepe Trefoil. Linn. Sp. Pl. 1079. Willd. n. 12. Ait. n. 12. Mart. Ruft. t. 16. Curt. Mag. t. 879. (T. leguminus polypermnis, folis pluribus; Gmel. Sib. v. 4. t. 6. f. 1.)—Flowers in short unilatral tufts. Leaves five, without a naked common stalk. Legume with many seeds.—Native of Siberia. Observed also near Constantinople by the abbé Seftini and Dr. Sibthorp. It sometimes appears in our gardens, from exotic seeds; but though hardly as to cold, does not endure long. The root is naturally perennial, tap-shaped. Stems erect, simple or branched, a foot, more or less, in height. Leaves lanceolate, about an inch and half long, smooth, elegantly veined and finely toothed, ufually five, rarely six or seven, each on a minute partial stalk, crowning the ribbed common one, which is bordered all the way up, on each side, with a long and broad membranous stipula. Flowers crim- fon, occasionally white, numerous, handform, in terminal heads; their partial stalks directed one way, hairy, each with a little cup-like membranous bractea at the base.


Heads nearly globofe. Legumes two-seeded. Stem erect. Leaves lanceolate, finely ferrated. Stipulas rhombo- boid, toothed at one side.—Native of Italy, Spain, France, Hungary and Barbary. Michelli gathered it in various garly or heathy places about Florence, flowering in May. The root is annual. Leaves somewhat like thofe of *T. Lupinafter*, n. 17, in shape, but the lower leaves have a long common stem. The stipulas are remarkable for their square figure. Heads of flowers small, dense, on long, solitary, axillary stalks. Corolla white. Legume half-oval, with a recurved beak. We agree with Willdenow, though we have not compared specimens, that the plant of Desfontaines is very near that of Michelli. Indeed we cannot find marks to define it as even a variety. Linneus adopted his *T. fritium* from the late-named author, in writing the second edition of *Sp. Pl.*, but before that work was printed, he obtained a spe- cimen of what he thought the fame, and this is elabo- rately defcribed there, though the crofs annexed to the fpecifi- c character, as in the original manucript before us, indi- cates his not having been the plant. What he there defcribed is *T. parviflorum* of Ehrlift, Willdenow's n. 56, our n. 66. We must presume that this defcription, according fo very ill with what profeffor Desfontaines found in Barbary, pre- vented his recognizing the Linnian plant.

21. T. efifflum. Tufted White Trefoil. Willd. n. 17. Reymier Mem. pour fervir à l'Hift. Phyf. et Nat. de la Suisse, v. 1. t. 162, with a plate, under the French name of *Trefo gazonant*. (T. Thali; Villars Dauph. v. 3. 478. t. 41.)—Heads roundish. Flowers slightly filiform, erect. Legumes mostly four-seeded. Leaves obovate, minutely toothed. Stems decumbent, tufted, shorter than the flower-stalks. Native of the mountains of Switzerland and Dau- phiny, in barren, wafte, or trodden places. This most re- fembles our Common White Trefoil, or Dutch Clover, hereafter defcribed, but the short, defpered, entangled stems, though compofing a defe turf, do not creep. The root is woody and perennial. Stalks of the flowers, and even of the leaves, longer than the items; the former terminal, foltary, erect, from two to five inches in length, bearing a globular, but slightly racemofe, head of white flowers, purplis at the base, less defpered than in *T. repens*, but we find no perceptible difference as to the comparative inequality of their calyx-leafs. Legume small, elliptical, compofed, strongly ridged at each margin, beaked with the permanent fide and capitale figur: enveloped in the dry, brown, ribbed corolla, and containing three or four small fees. No valuable properties with refepect to agriculture have been discovered in this plant, nor has it been hitherto raised in England.

TRIFOLIUM.


The Curt., the Melilotus in above obtusfo, variable, fupinum copiouily veiny, others nearly rifienlis partly ftout and furnished, while others have been confounded herewith. This is one of the species well worthy of agricultural experiment, though hitherto unnoticed in England. Its crop must be very con-

considerable.

Linnaeus calls the stem “ascending” yet the fpecimen in his herbarium is perfectly erect, though zig-zag in the upper part. Ehrhart, in his Physophyllum, n. 26, gives, under the name of T. hybridum, Upal fpecimens whose stem is decumbent, or partly ascending, hollow, but not zig-zag. The leaflets are narrower, as well as much more harply and copiously ferrated, than in the Linnaean specimen, and the flower-flalks are longer. This appears to be the Trifolium pratense com- 

This decumbent or ascending plant, doublets known to Linnaeus, must have been comprehended in his idea of T. hybridum, of which it is probably a variety. Ehrhart has named it, according to a mode of his own, Dubroma, indicating its value as food for oxen. The tubular stem clearly distinguishes these two plants, whether species or varieties, from all to which they are near akin, especially from the following, and T. repens.


The leaflets vary greatly, and are fometimes wedge-shaped. The definitive character of the stem being not tubular, but 

flaked, emarginate, finely ferrated; the lower ones partly entire. Flowers white, on hairy partial flalks, com- 

Some fpecies, named in the herbarium, are not noticed. Though not much larger than obovate, emarginate, finely ferrated; the lower ones partly entire. Flower-flalks four-feeded. Leaflets variously heart-shaped, or round, and taper-pointed. Some fpecies, named in the herbarium, are not noticed. Though not much larger than obovate, emarginate, finely ferrated; the lower ones partly entire. Flower-flalks four-feeded. Leaflets variously heart-shaped, or round, and taper-pointed. Some fpecies, named in the herbarium, are not noticed. Though not much larger than obovate, emarginate, finely ferrated; the lower ones partly entire. Flower-flalks four-feeded. Leaflets variously heart-shaped, or round, and taper-pointed. Some fpecies, named in the herbarium, are not noticed. Though not much larger than obovate, emarginate, finely ferrated; the lower ones partly entire. Flower-flalks four-feeded. Leaflets variously heart-shaped, or round, and taper-pointed.
TRIFOLIUM.

26. T. conspersum. Tufted Trefoil. Linn. Sp. Pl. 1580. Wild. n. 20. Ait. n. 18. (T. carminianum; Michaux Boreal.-Amer. v. 2. p. 58; Pursh n. 3? Poiret in Lamarck n. 2? Lagopus americanus, floribius majoribus comosis; Poit. Muf. 26. n. 254.)—"Heads globose. Flowers flaked, imbricated. Standard deflexed, permanent. Legumes four-seeded."—Native of America. Linnaeus. The carminianum of authors, here quoted with doubt, is described as diminutive and erect; its leaflets inerly heart-shaped, rounded, smooth, fringed and finely crenate; stipulas cloven; heads reflexed, of few flowers; corolla being projecting beyond the calyx; seeds about three. This is found in sandy fields near Charlestown, South Carolina, flowering from June to August, and is perennial. Flowers smaller, white, Pursh. How far the opinion of Poiret, adopted by Pursh, that the above two plants constitute one species, is correct, we are utterly unable to determine, having seen neither; but Petiver's definition of the flowers is altogether at variance with that of Michaux and Pursh.

27. T. alpinum. Dwarf Alpine Trefoil. Linn. Sp. Pl. 1580. Wild. n. 21. Ait. n. 19. Dicki. Dr. Pl. 38. (T. n. 369; Hall. Hist. v. 1. 161. T. alpinum, flore magno, radice dulci; Bauh. Prodr. 143. no figure. T. alpinum rheticus, affragaloideis; Bauh. Hist. v. 2. 376. T. angustifolium alpinum; Ger. Em. 1207. Trifolium angustifolium alpino; Pon. Bald. 154.)—Heads hemispherical, somewhat racemose and whorled. Flower-inflect radical, naked. Legumes two-seeded, pendulous. Leaflets linear-lanceolate.—Abundant in the alpine pastures of Switzerland, Italy, the Pyrenees, and the south of France, flowering in August. The most unscientific visitor of those beautiful scenes could hardly overlook this plant, whose large bright crimson flowers, each above an inch long, seem to spring almost immediately from dense tufts of no less elegant leaves. If this species, procured for the English gardens about forty years ago by Dr. Pitcairn and Dr. Fathergill, be still preferred, a coloured figure of it would be highly acceptable to the public. The root is perennial, thick and woody, running very deep into the ground, and paid to have the sweetness of liquorice. Stems very short, or scarcely any. Herbage smooth. Stipulas long, lanceolate, membranous, finely frilled. Common flower-inflect simple, often not taller than the leaves. No other species can be confounded with this.

28. T. involucratum. Striped-flowered Trefoil. Wild. n. 49. Donn. Cant. cd. 5. 183.—Heads roundish, dense, each with an orbicular, ribbed, many-toothed, spinous involucrem. Stem erect, branched. Leaflets lanceolate. Stipulas many-toothed. Legumes two-seeded.—Native of the west coast of North America, from whence its seeds were brought by Mr. Meuzies, and raised in the Cambridge garden in 1791. We obtained specimens there August 30, 1796. Yet this species does not occur either in Hort. Kew., or in Pursh, nor did we discover it in Widdowson, till we had hit on the same name, he having greatly misplaced it, in the next fiction, after T. angustifolium. The root is annual. Stem twelve or eighteen inches high, branched, leafy, hollow, round, smooth like the root of the plant. Stipulas membranous, with many unequal brilbly teeth. Leaflets elliptic-lanceolate, toothed, an inch or an inch and half long. Heads of flowers above an inch broad, on long, stout, frilated, axillary stalks, and each subtended by a very remarkable membranous orbicular involucrem, wholly strong, close, radiating ribs, end in unequal spinous teeth. Flowers feiller. Calyx ribbed and spinous, membranous, pale with green teeth. Corolla variegated with purple and white. Legume ovate, abrupt, compressed, with two entirelly distinct valves, and two seeds. The whole plant sometimes becomes very diminutive from natural.

Sect. 3. LAGOPODA. Calyx more or less villous.

29. T. subterraneous. Subterraneous Trefoil. Linn. Sp. Pl. 1580. Wild. n. 22. Fl. Brit. n. 4. Engl. Bot. t. 1548. Curt. Lond. f. 2. t. 54. Rivin. Tetrap. Irr. t. 13. f. 1. (T. pumilum fupinum, ficolus longis albis; Ral Syn. 327, t. 13. f. 2.)—Heads of about four flowers. Calyx-teeth linear, hairy. Involucrem central, reflected, rigid, flat-like, embranching the fruit.—Native of Italy, the Levant, France, and England, on dry gravelly heaths, among short grass, flowering in May, and very common in Hyde park, Greenwich park, &c. Root annual, knobbed. Stems deflated, spreading, almost concealed by the numerous leaflets, each long, pale purple-veined. Leaflets inerly heart-shaped, dark green, hairy. Flowers at the end of a stem, erect, each bearing three or four flores, conspicuous for their long white corolla. After flowering, these stalks bury the legumes, which are thin and single-headed, in the ground, and fix them there, by shooting out several spreading firm and thick fibres, constituting an involucrem of the fruit, though apparently like roots. The herbage of this species is trifling, and though it conduces to the spring verdure of many an otherwise barren tract, has nothing to encourage cultivation.

30. T. globulorum. Globular Cotton-headed Trefoil. Linn. Sp. Pl. 1581. Wild. n. 23. Sm. Fl. Grac. Sibth. t. 744, unpubl. (T. orientale, capite lanigino; Tourn. Cor. 27.)—Heads globos, many-flowered. Calyx very hairy all over, with linear teeth. Upper flowers numerous abortive, densely villous. Stems decumbent.—Native of Arabia and Syria, as well as of Cyprus and Asia Minor. A rare annual species, which Linnaeus cultivated from Haffelquilt's seeds, and which may have been in our gardens a century ago, though not at present to be met with. It preserves some analogy with the last, though very unlike in appearance, having many pink flowers, in upright heads, and the stems are far less deflated. The leaflets have each a white transverse stripe, but not constantly. The analogy alluded to confits in the flowers, which perfect seed, being overwhelmed and borne down by a number of abortive ones above them. These seem to grow out as the number of sides, in the form of empty calyxes with innumerable, woolly, entangled teeth. No figure of the present species has yet appeared, but Mr. Baker has prepared a very admirable drawing for the Flora Graeca.

31. T. bifidum. Brittle-headed Trefoil. Desfont. Atlant. v. 2. 200. t. 209. f. 1. Wild. n. 24. (T. hirs- tum; Allien, Auct. 26.)—Heads terminal, solitary, globose. Calyx very hairy, with taper teeth. Involucrum of several roundish-ovate pointed leaves. Stem erect.—Gathered by Desfontaines in fields in Barbary, near Mafcar; by Allioni in Monteferrat. Root annual, long and tapering. Stem erect, a foot high, more or less branched in a corymbose manner, frilled, leafy, thaggy with soft hairs, as are likewise the leaves and their stipulas. Leaflets obtuse, finely toothed, obtuse, not emarginate. Heads many-flowered, sessile, subtended by three or four close, membranaceous, ribbed, hairy bracteae, all pointed, and a fully
foliary leaf like those lower down. *Corolla* rose-coloured, longer than the calyx-teeth, which however gradually extend beyond it as the flower fades. We much doubt whether this be a distinct species from the following. The *bracteas* are very similar, except being pointed, and the position of the *flora* as well as the form of the *leaflets*, are known to be uncertain marks.

32. T. Cherei. Hairy Pink Trefoil. *Linn. Sp. Pl. 1081*. Willd. n. 25. Ait. n. 22. *Sm. Fl. Grce. Sibth. t. 745*, unpubl. (T. glomerus perfonata, Cherei; Buhl. Hift. v. 2. 377. Lagopus minor, fupinus, mollis et compreffo capite, flore albo; Barrel. t. 8. 1899.)—Heads terminal, foliary, globose. Calyx very hairy, with taper teeth. Involucrum of three roundish-ovate pointless leaves. Stems procumbent.—Native of France, Spain, and Barbary, in barren dry places. Dr. Sibthorp gathered it on the shores of Greece and the Archipelago. The seeds are sometimes introduced into our gardens from abroad. This is a little annual species, usually with several procumbent *flora*, three or four inches long; in a flaved flat having a foliary more erect one. *Leaflets* inerely heart-shaped, with a dark-purple mark. *Flowers* numerous, in dense heads. *Corolla* twice as long as the calyx, pale bluish-coloured, with a long crimson *floral*; but the calyx-teeth subfubsequently rife above it. The involucral leaves are like the leaf, except in being blunt, and are also accompanied by a leaf.—*T. pidum*, Willd. n. 26. Biebr. Taur. v. 2. 210, appears not to differ from *T. Cherei*, and is doubtless Dr. Sibthorp's plant gathered on the shores of Greece and the Bosphorus. Nothing can be more uncertain than the spots on the leaves, which gave occasion to the name; and the proportion of the *corolla* to the calyx depends on the period of examination. Barretier faithfully represents it longer as the *calyx* in *Cherei*, when the flower is in perfection.

33. T. *spherocephalum*. Round-headed White Trefoil. *Desfont. Atlant. v. 2. 201. t. 209. f. 2*. Willd. n. 27.—Heads terminal, foliary, globose. Calyx very hairy, with taper teeth, twice the length of the corolla. Involucrum of three rounded leaves. Stems procumbent.—Native of fields in Barbary, near Mafcar. *Desfontaines*. Very like the last, except its little white corolla, shorter than the calyx. The citation of Barretier, copied by Willdenow from Desfontaines, is the very fame which, in the preceding page, he had transferred from Linnæus, though less exactly given by the latter. The proportion of the corolla does not answer to this, but to *T. Cherei*, which may very probably have occasionally, but Barretier says it has, a white *floral*. We should hardly scruple to reduce these three last described, with *pidum*, to one species.

34. T. facetum. Thyme-headed Trefoil. *Allion. Pedem. v. 1. 305. t. 59. f. 3*. Willd. n. 28. (T. thymiflorum; Villars Dauph. v. 3. 487. T. parvum rectum, flore glomerato cum unguiculis; Buhl. Hift. v. 2. 378. Treffe des glaciars; Rey. Mem. pour servir à l'Hist. Phys. et Nat. de la Suisse; v. 1. 166.)—Heads terminal, mostly in pairs, hemispherical, leafy. Calyx densely hairy, with taper teeth, as long as the corolla. Upper *floralibus* bracteaceus, ovate, acute. *Leaflets* wedge-shaped, emarginate.—Native of the sandy beds of torrents, among the alps of Dauphiny and Piedmont, or the glaciers of Switzerland. Our specimens from M. Reynier's herbarium were gathered at the glaciers of mount Sylvo, which terminates the valley of St. Nicholas in the Vallaas, by the celebrated herbalist M. Thomas. The root is described as biennial. *Stems* several, a finger's length, simple, leafy, rather silky than hairy, crowned with one or two small, densely silky heads, of little white *flowers*; the central ones, according to Villars, imperfect or abortive. *Leaflets* small, silky, fearfully toothed, deeply emarginate. *Stipulas* purplish, ribbed, acute, for the most part lanceolate, but those of the two opposite leaves, close under the heads of flowers, are broad and ovate, serving as *bracteas*.


37. T. hiratum. Hairy Cape Trefoil. *Thunb. Prodr. 136. Willd. n. 31.*—"Heads globose, hairy. *Leaflets* oblong, hairy."—Found also at the Cape, by *Thunberg*. It is impoffible to form a correct idea of these three last species, from the above characters, which but fcarcely well a number already known, to which the author appears never to have adverted. We merely regret to have these plants here for future inquiry.


40. T. *rotundifolium*. Round-leaved Lillac Trefoil. *Sm. Prodr. Fl. Grce. Sibth. n. 1795. Fl. Grce. t. 747*, unpubl.—Heads globose, terminal, foliary, with lanceolate bractees. Calyx very hairy, longer than its teeth. *Stems* fimple, diffuse. *Leaflets* nearly orbicular, toothed, hairy.—Gathered by Dr. Sibthorpe in the Morea. A very pretty and diflinguifh annual species, which seems never to have been noticed before. The *flora* are fcarce a span long, clothed, like the rilt of the herbage, with copious hairy hairs. *Leaflets* remarkably round, not half an inch in diameter, strongly and unequally toothed. Calyx tubular, very flightly inflated, with short, lanceolate, upright teeth. *Corolla* twice the length of the calyx, elegantly variegated with
TRIFOLIUM.

with pale purple and white, its petals distinct. German hairy.

41. T. Lagopus. Oblong Hairy Trefoil. Willd. n. 34.


42. T. pilosum. Stipulaceous Cape Trefoil. Thunb. Prodr. 136. Willd. n. 35.—"Hills villous, or 3erennial. Stem herbaceous, decumbent at the base. Leaflets jagged, villous."—Found at the Cape of Good Hope, by Thunberg, whose specific character is all we know of this species. The word "herbaceous" is truly superfluous in any specific character of a *Trifolium*.

43. T. microcephalum. Little-headed Trefoil. Pursh n. 4.—"Ascending, downy. Leaflets ovate, emarginate, finely toothed. Stipulas ovate, pointed. Heads minute, flaked, of a few yellow flowers. Involucrum ovate, awned. Calyx awned, as long as the corolla."

—Found by governor Lewis, on the banks of Clarke's river, flowering in July. Perennial. Flowers exceeding small, pale purple. Pursh. Some specimens from the north-west coast of America answer nearly to these characters, except being quite smooth, and we are persuaded they are only a diminutive flat of *T. involucratum*, n. 28.

44. T. rubens. Red Long-spiked Trefoil, or Clover. Linn. Sp. Pl. 1081. Willd. n. 36. Ait. n. 26. Jacq. Ait. 1792. t. 383. Mart. Ruff. t. 9. (Lagopus major, spicul longiori; Ger. Em. 1192.)—Spikes long and cylin- drical. Calyx-teeth hairy; the lowermost about the length of the monopetalous corolla. Stipulas fwoor-shaped, longer than the footstalk. Leaflets lanceolate, sharply serrated. Stem erect.—Native of Italy, the fonth of France, Germany, and Switzerland, especially in the warmer meadows of the latter, where, according to Haller, this handfome species is very common. It flowers in summer, and found a place in our English gardens in Gerarde's days. Root perennial. Stem one or two feet high, erect, firm, full of solid pith, smooth like the very elegant, finely serrated, and armed, leaflets, which are two inches long. Their common flark is united almost entirely to the long, entire, even, sharp-pointed flipulas, which reach far beyond it. Flowers crimson, in dense, cylindrical, thick, blunt spikes, two or three inches long, beft with the prominent brightly calyx-teeth, of which the lowermost is much the most conspicuous. This Trefoil, though not hitherto brought into cultivation, feems, as profefor Martyn observes, of a good quality, and sufficiently productive.

45. T. pratense. Common Purple Trefoil, or Clover. Linn. Sp. Pl. 1082. Willd. n. 37. Fl. Brit. n. 6. Engl. Bot. t. 1770. Mart. Ruff. t. 3, and t. 36. Fl. Dan. t. 989. Ait. A "Tr. of Linn. Soc. v. 1. t. 240. Mat. Valgr. v. 2. 189. (T. pratense purpureum; Puch. Hill. 817. Trifolium; Rivin. Tetrap. Irr. t. 11. f. 1.)—Spikes ovate, dense. Stems ascending. Corolla monopetalous, unequal. Four of the calyx-teeth equal. Stipulas awned.—Common in grassy meadows and pastures throughout Europe, flowering from May to September. In its native situations, particularly on dry calcareous or gravelly hills, this valuable plant is truly perennial, although, like Sainfoin, less permanent in cultivated manured land. For its agricultural properties, and management, see Clover. Great difficulties have long attended the botanical discriminations of this and other species, which we shall pretently describe; but they are for ever set at rest, by the most minute and laborious details of Mr. Aizelius, in the first volume of the Linnean Society's Transactions. Nor is this question merely curious or speculative; for the qualities of the plants, in an economical view, are as widely different as can well be. The root of *T. pratense* is tapering and branched, but not creeping. Stems about a foot high, more or less, slightly branched, leafy, foldy, downy in the upper part. Leaflets elliptical, more or less acute, entire, smooth, with a pale lunate spot. Upper leaves, near the flowers, mostly opposite. Stipulas rather broad, pale, purple-ribbed, with taper points. Spikes terminal, solitary, leafy, of numerous light-purple flowers, with a sweet, but faint scent, their petals united at the base, and combined with the filaments. Calyx hairy, ten-ribbed, its lowest tooth longer than the rest, but much shorter than the corolla. The figures in Fl. Dan. and Martyn represent the cultivated plant; that of Eng. Bot. the wild one. What Dillenius represents, in his edition of Ray's *Synopsis*, t. 13. f. 1, seems merely a starved plant. There is said to be a procumbent, very hairy, kind, found on the loftiest mountains of Switzerland and Dau- phiny, which is also but a variety.

46. T. medium. Zigzag Trefoil, or Baftard Clover. Linn. Faun. Succ. ed. 2. 358. Hudf. ed. 1. 284. Ait. Tr. of Linn. Soc. v. 1. t. 235. Mart. Brit. Bot. t. 190. Mart. Ruff. t. 2. (T. flexu- ofam; Jacq. Ait. r. 386. T. alpestris; Fl. Dan. t. 662. Hudf. ed. 2. 326, but not of Linneus.)—Spikes lax. Stems zigzag, branched. Corolla monopetalous, nearly equal. Two upper calyx-teeth shorted. Stipulas linear, taper-pointed. Native of most parts of Europe, particularly in elevated calcareous pastures, or on a gravelly soil over clay, flowering in July. Differs from the last in its zigzag, more branched, stem, whose pith is very thin and peliucid, that the centre seems hollow. The longer and finceur litoralis, and more lax spikes, as well as the fringed elliptical leafets, somewhat glaucous beneath, further mark this species, which ought to be carefully distinguished, as being deifique of any value to the farmer. The root is perennial.

47. T. alpefr. Oval-spiked Narrow-leaved Trefoil, or Clover. Linn. Sp. Pl. 1082. Willd. n. 39. Ait. n. 29. Jacq. Ait. r. 433. Mart. Ruff. t. 1. Ait. Tr. of Linn. Soc. v. 1. 243. (T. folio longior, flore purpureo; Rivin. Tetrap. Irr. t. 12. f. 1.)—Spikes globose, more numerous. Calyx-teeth hairy; the lowermost as long as the monopetalous corolla. Stipulas bristle-pointed. Leaflets lanceolate, nearly entire. Stem simple, erect.—Native of mountain forests, in Siberia, Germany, Thrace, and Swit- zerland. The late Mr. Davall, who never met with this species, except in one little spot, in a forest near Orbe, was perfuaded it was unknown to Haller, in his n. 376, though taken for this, being probably our *medium*. Among fifteen or sixteen plants, Mr. Davall saw but one with two heads of flowers. The root is perennial. Stem straight, angular, downy, a foot high. Leaves most like *T. rubens*, as beautifully frated with veins, but far less vividly toothed. Stipulas hairy, linear, united to the footstalk about half its length only; their points almost thread-shaped, very long, hairy, shorter than the lower footstalk, longer than the upper. Flowers crimson, in a round head, overtopped by the upper leaves. Of no use for cultivation, affording few leaves, and never branching.


Stipula.
TRIFOLIUM.

Stipulas awned. Stem branched. Leaflets ovate, obtuse, slightly and minutely toothed."—Found by Mr. Schoutboe in Morocco. Root annual, or biennial. Wild. We know nothing more of this species.


Leaflets an inch and a half or two inches long, elliptic-lanceolate, either quite entire, or bluntly toothed towards the end, which is tipped with a little fpine point. Stipulas oblong, ribbed, united to the lower half of each footstalk; their margins twice as long as the footstalks. Calyx furrowed, its upper part, and long teeth, clothed with long and dense fally hairs. The prominent rounded angle of each wing of the corolla retains, in the dried femen, a remarkable whitenefs, something of which may be feen in T. ochroleucum.

Profeflor Willdenow, in a note to his Enumeratio, 793, has feparated Tournefort's plant by the name of armenium, diftinguifhing it chiefly by the leaflets being linear-lanceolate, and emarginate; for the flight differences in the proportion of the lower calyx-tooth and tube of the corolla, as well as the caflual branching of the stem, are of no moment. Our Bithynian fpecimens have certainly narrower leaflets than one fent from Piedmont; but thofe in the Linncean herbarium, as well as the plates of Jacquin and Allioni, are intermediate between the two. We have not examined an authentic fpecimen of Tournefort, but there is no reafon, from Willdenow's definition, to fuppofe his a different species.

51. T. elongatum. Long-beaked Trefoil. Wildl. n. 41. — "Spikes lax, embifie, foliary. Lower calyx-tooth the length of the wings of the monopetalous corolla. Standard very long. Stipulas lanceolate. Leaflets lanceolate, villous. Stem ascending, branched." — Native of Galatia. Perennial. The whole plant is villous. Stem half a foot high, branched from the base, round, ftriated. Leaflets toothed at the extremity. Stipulas oblong, with a lanceolate point. Calyx tubular, villous; with fetaeous teeth, four of which are nearly equal. Standard lanceolate, twice as long as the wings or keel. Differs from T. alpifcri in having small leaves, a longer standard, a branched ascending fem, and in being a hairy plant. Willdenow.

52. T. canescens. Hoary Oriental Trefoil. Wildl. n. 42. Ait. n. 31. Sims in Curt. Mag. t. 1168. (T. trichocephalum; Bieberf. Taur. v. 2. 212. T. orientale canescens, capitulo oblongo, fortiidé albo; Tourn. Cor. 27.) — Spikes ovate, lax, foliary. Calyx-teeth hairy, lanceolate, all nearly equal. Corolla monopetalous. Stipulas taper-pointed. Leaflets elliptical, villous. Stem fimpie, ascending. — Native of Cappadocia, and of the alpine heights of Caucasus, towards Armenia. Mr. Lodidges of Hackney received it from the neighbourhood of mount Caucasus. A hardy perennial, flowering in May. Root cylindrical, rather woody, branching at the top into several leafy tufts. Stems feveral, a fpans high, or not fo much, covered with clofe fally hairs, feightly hairy. Leaflets hardly an inch long, more or less acute, very nearly entire; moft ftriated with fine elevated ribs near the edge. Stipulas pale, minute and feparate, gradually tapering into a hairy point. Spike thick, two inches long, Calyx hairy; its lowest tooth very little the longer. Corolla cream-coloured. We conceive there can be no doubt of the correctness of the above fynonyms, though we have not compared fpecimens.

53. T. ochroleucum. Sulphur-coloured Trefoil. Linn. Syst. Nat. ed. 12. v. 3. 233. Wildl. n. 47. Ait. n. 36. Fl. Brit. n. 5. Engl. Bot. t. 1224. Jacq. Auffr. t. 40. Curt. Lond. f. a. 6. t. 40. Mart. Ruft. t. 35. Afzel. Tr. of Linn. Soc. v. 1. 229. (T. squarrosum; Linn. Sp. Pl. 1082. Wildl. n. 44. Ait. n. 33.) — Spikes elliptical, hairy. Lowest calyx-tooth very long, linear, finally reflexed and rigid. Stem ceref, downy. Lowest leaflets inferiofe heart-shaped. — Found in dry, bufty, gravelly or calcareous patures, in England, Switzerland, Austria, and the fouth of Europe, as far as Conftantinople, flowering in June or July. Root branching, perennial. Habit of the plant between pratensis, medium, &c. with which it agrees in flox, and pannonicum, which it refembles in fhape of the flowers. The white point of the wings, when dry, is confiderefe thick. The flowers are十二 or thirteen inches long, high, folid, but little branched, and of a fliff, fender, bare afpèct. Leaves dilant, on longifh stalks; the uppermoft opposite; leaflets linear-oblong, or somewhat elliptical, thefe of the lower leaves short, rounded, or obcordate; all hairy, and almost perfectly entire. Stipulas linear, tubular, clofie, with fimpie ribs, and a very taper point. Head terminal, flaked, eref. Calyx furrowed, hairy, with brifte-leafe teeth, the lower one thrice the length of the reft, and, after flowering, till more elongated, wijie, and reflexed, giving the head a feafer-like afpèct. Corolla monopetalous, yellow-fih cream-coloured, with a long eref standard. Le- gumceembranous, with one feed, in the fwellling tube of the calyx.

We remove this fpecies nearer to its allies than where Willdenow has placed it. In an advanced flate, it was defcribed by Linneus as diffus, by the name of squarrosum, but the original fpecimen from Sauvages's herbarium has enabled us to correct this mistake. The fynonym of Morifon, feet. 2. t. 13. f. 1, evidently belongs to T. anguf- tifolium, n. 57, though possibly his "other fpecies, with a round leaf," may be ochroleucum; but this is of little importance. What T. squarrosum of Bieberf. Taur. v. 2. 214, with a purplifh flower, may be, we cannot determine. It is requisite to correct an error in Fl. Brit. where Fuchs is cited improperly, his plant being T. montanum, here-after defcribed.

TRIFOLIUM

footstalks even to its uppermost opposite leaves, and also an emarginate standard; from obovate-lanceolate, with a long point, and the calyx-teeth nearly equal; from both it is distinguished by the annual or biennial root, roundish leaflets, white flowers, and whole aspect. 

55. T. maritimum. Tresel-headed Trefoil. Hudsf. ed. i. 284. Fl. Brit. n. 8. Engl. Bot. t. 220. Willd. n. 43. (T. bellatum; Hudsf. ed. 2. 326. T. bellatius glabrum; Ger. Em. 1208. Pluk. Phyt. f. 4. T. spicatum minus, flore minore dilutae purpureae; Morif. feé. 2. t. 14.)—Spikes terminal, nearly globose. Calyx-teeth lanceolate, leafy; finally spreading. Stipulas lanceolate. Leaflets obovate. Native of muddy marshes, especially near the sea, in various parts of the English coast, from Norfolk to Somerfetshire, or does this Trifolium seem to be known in any other part of the world. The plant is annual, flowering in June and July. Stems numerous, near a foot high, spreading or decumbent, branched, very leafy, round, fringed, a little hairy. Leaflets from half an inch to an inch long, of a narrow ovate, bristle-shaped, the dark green, hairy. 

56. T. incarnatum. Crimson Trefoil. Linn. Sp. Pl. 1083. Willd. n. 45. Ait. n. 34. Curt. Mag. t. 328. Sm. Fl. Græc. Sibth. t. 748, unpublished. (Lagopus maximus; Clf. Hift. v. 2. 246. Ger. Em. 1192. L. latifolius; Rivin. Tetrap. Irr. t. 17.)—Spikes cylindrical, obtuse, leaflet-like, hairy. Leaflets ineradically heart-shaped, rounded, crenate, hairy. Calyx-teeth awl-shaped, nearly equal.—Native of Italy, France, Switzerland, &c. Gathered by Dr. Sibthorp on the celebrated mount Athos. This is a hardy, annual, and considerably ornamental plant, long known in our gardens, flowering in July, but not in such general cultivation as it deserves. The broad roundish leaflets; obtuse, wavy, red-veined stipulas; and especially the long denf dufed spikes, of a peculiarly rich and beautiful crimson or carmine colour, readily distinguishes this species. As the seed ripen, the spreading, rigid, pointed calyx-teeth render the spikes very prickly. The stem is erect, softly hairy, eighteen or twenty-four inches high.

57. T. angustifolium. Narrow-leaved Trefoil. Linn. Sp. Pl. 1083. Willd. n. 48. Ait. n. 37. Sm. Fl. Græc. Sibth. t. 749, unpublished. (T. alpeccrum angustifolium elatus; Barrel. Irr. t. 658. Lapogus hispanicus; Rivin. Tetrap. Irr. t. 16. L. angustifolius hispanicus; Clf. Hift. v. 2. 247. Ger. Em. 1193. T. spicatum minus, flore minore dilutae purpureae; M. Em. t. 751.)—Spikes cylindrical, hairy. Leaflets linear, pungent. Calyx-teeth bristle-shaped or nearly entire, dark green, nearly roundish, rather longish.—Native of the south of France, Spain, Italy, Germany, Carniola, Caucaus, Greece, and the Archipelago, flowering early in summer. In the latter countries it goes by various modern Greek names, synonymous with Cast's tail. This Trefoil has often been raised in our gardens, being a hardy annual, distinguished from the last by its very narrow, very gravelly leaflets, and the pale pink, or lilac, hue of its corolla.


59. T. flclatum. Starry-headed Trefoil. Linn. Sp. Pl. 1083. Willd. n. 51. Ait. n. 39. Compend. Fl. Brit. ed. 2. 110. Engl. Bot. t. 1545. Sm. Fl. Græc. Sibth. t. 756, unpublished. (T. bellatum purpureum monspeliacanum; Bauh. Hift. v. 2. 376. f. 2. Morif. fét. 2. t. 13. f. 9.) Lagopus minor echinus, capite globoflato, floribus purpureis; Barrel. Ic. t. 860.—Spikes terminal, hairy, ovate. Calyx-teeth spreading, leafy, equal, taper-pointed. Leaflets ineradically heart-shaped, toothed. Stipulas elliptical. Stems spreading.—Found in sandy fields throughout the south of Europe, and every part of the Levant, flowering in June and July. Tradefant cultivated this pretty plant, and Gerard has left us a good description, but no figure. Hudfon latterly mistook his own maritimum, n. 55, for the flclatum; but the latter was discovered by Mr. W. Borrer in Suffolk, in 1804, growing plentifully between Shoreham Harbour and the sea. The herb is annual, varying much as to luxuriance, always considerably hairy, spreading or diffuse. Leaflets small and abrupt. Flowers white, or blush-coloured, monopetalous, the standard erect, rising much above the very hairy calyx, whose enlarged, red or tawny, teeth spread in a flary manner after flowering, when their crimson bases are entirely contrasted with a dense tuft of white cottony hairs, which clofe the mouth, and conceal the little membranous single-feeded legumes.

60. T. leucanthum. White-bloomed Tartarian Trefoil. Biebebr. Taur. v. 2. 2. 214.—"Spikes villous, nearly globose, flaked. Calyx spreading, with nearly equal teeth, shorter than the corolla. Stipulas awl-shaped. Leaflets obovate-oblong, slightly ferrated at the exstreme."—Native of dry hills, in the southern parts of Tartary, flowering in May and June. Pallas mistook it for T. flclatum, to which it is described, in the above work, as being very near; but the stems are only about a finger's length, stipulas lanceolate-awl-shaped, entire, (which is the most material distinction,) leaflets much oblong; at leaf the upper ones, flowers smaller, the villous hairs of the calyx (we presume in its mouth) reddish, not white.

TRIFOLIUM.

T. pratense, but the leaflets are shorter and rounder, sometimes marked at each side with a small marginal purple streak, not a central spot. Flowers either light rose-coloured, or white. Calyx very remarkable, especially as the fruit advances, for its broad, ovate, pointed, hairy, many-ribbed teeth, or segments, forming a sort of fiveangled shield, green and leafy, its mouth closed by an oblong valve, under which is the small, membranous legume, with a gibbous seed. The great inequality of its calyx-teeth distinguishes this plant from the _fistulatum_ and _maritimum_; its broad stipulas approach the former, but are totally unlike the latter. Indeed these three species, though more naturally allied, by the peculiarities of their _calyx_, to each other than to any of the foregoing besides, are very unlike in habit. Many of the following accord with them in the leafy nature of _their_ calyx, but differ in having lateral heads, to say nothing of their much smaller dimensions.

62. T. albicans. Whitith Starry Trefoil. Retz. Obs. facs. 4. 30. Willd. n. 53. Ait. n. 41.—'Spikes stalked, nearly globular. Calyx spreading; its lower tooth linear-awl shaped. Stipulas linear-awlshaped. Leaflets oblong, stems diffusif.—The native country of this species is unknown. Professor Retzius raised the plant from seeds he obtained under a wrong name, Mr. Atten mentions it as from Tarsus, at about 786. It is an annual, flowering in July and August. The _stems_ are branched, round, slightly downy; _branches_ knotty at the base. _Leaves_ opposite; _leaflets_ of the lower ones ovate, of the upper lanceolate, with a short recurved terminal bristle, the margin and keel fringed. _Stipulas_ streaked with green and white. _Heads_ on long straight stalks, without floral leaves; nearly globular when in flower, ovate in fruit. _Calyx_ cylinrical, downy, with close-preceded awl-shaped teeth; the lowermost three ribbed, about the length of the corolla, which is yellowish-white and monopetalous; the dorsal ones, which are rather shorter than the two next, are cleft to close to the corolla, that their points are hidden under the lateral teeth. As the _fruit advances_, the _calyx-teeth_ become dilated and spreading, as in _T. fistulatum_. _Retzius._ We have seen no specinmen.


64. T. cichoriun. Little Hedge-hog Trefoil. Bieb. Taur. v. 2. 216.—'Heads ovate, terminal and axillary, stalked, leafy. Calyx-teeth awl-shaped, unequal, hairy, shorter than the corolla. _Stems_ declining, branched. Leaflets oblong-oblong, entire.'—Native of mount Caucasus. _Annual. Habit of T. lappaceum_, n. 38. _Stems_ rather hairy, with subdivided branches. _Stipulas_ awl-shaped, hairy. _Leaflets_ entire, slightly hairy. _Flower-flakes_ much longer than the heads. Calyx liriated, downy all over; tube very short; teeth extremely narrow, finely pointed, clothed with spreading hairs; the lowermost longest; all widely expanded when the fruit ripens, as in _T. lappaceum_. Corolla monopetalous, pale, twice the length of the calyx, with a long lanceolate flabellum. We have seen no specinmen. This species appears indeed to be very near _lappaceum_, though ranged after _fistulum_ by the learned author who is our only guide.


66. T. parviflorum. Small-flowered Trailing Trefoil. Ehrb. Beitr. v. 7. 165. Pl. Scot. n. 29. Willd. n. 56. Bieb. Taur. v. 2. 218.—_Heads_ globose, axillary, stalked, nearly smooth. _Calyx-teeth_ awl-shaped, rather unequal, spreading, recurved, longer than the corolla. _Stems_ procumbent. _Leaflets_ obovate, toothed.—Native of Hungary and Siberia. _Willdenow._ Linneas knew this plant, but confounded it with _tripanum_; see n. 20. It is most akin to _glomeratum_, in size, habit, smoothness, mode of growth, and peculiar characters; but differs essentially in the length and form of its _calyx-teeth_, as well as the stalked _heads_, and remarkably membranous pellucid _stipulas_, with green awl-shaped teeth. The <i>corolla</i> seems to be fethile coloured. A few hairs are sometimes seen on the _calyx_, which is very strongly ribbed.

67. T. _fistulatum._ Soft Knotted Trefoil. Linn. Sp. Pl. 1085. Willd. n. 57. Pl. Brit. n. 12. Engl. Bot. t. 1843. (T. parvum hirtulum, _floribus parvis dilute purpureis_, in _glomerulosis_ oblongis, _Stevens._ Vail. Pars. t. 380. f. 13. 3. _Vaill._ Parif. t. 33. f. 2.)—Heads ovate, fethile, lateral and terminal. _Calyx_ elliptical, hairy, furrowed, with bristle-shaped, rather unequal, teeth. _Leaves_ downy.—Native of dry, rather barren, sandy pastures, in Germany, Hungary, France, Spain, and England, flowering in June. _Root_ annual, with small fibril knobs. Whole herb downy, and very soft to the touch, by which it is known from all the species which it otherwise refembles. _Stems_ procumbent, from three to five inches long, branched, round, often zigzag. Leaflets obovate, finely tooched. _Stipulas_ ovate, broad, pointed, somewhat membranous between the ribs. _Heads_ mostly terminal. _Calyx-teeth_ green, fringed, lengthened out after flowering. _Corolla_ pale colore, abouot as long as the _calyx_. _Germen_ with rudiments of two _seeds_; _legume_ with only one, which is thrice as large as that of _glomeratum_, n. 65.

68. T. gemelum. Twin-headed Trefoil. Willd. n. 58. _Heads_ oblong, terminal, in pairs. _Calyx_ hairy; its teeth bristle-shaped, unequal, longer than the corolla. Leaflets wedge-shaped, entire, finely tooched at the extremity. _Stems_ simple.—Native of Spain, from whence specimens were sent by the abbé Pourret, to professor Willdenow, under the above name. _Root_ annual. _Stems_ a
TRIFOLIUM.

finger's length, or more, diffuse, villous. *Leaflets* villous, hoary, lanceolate-wedge-shaped, frayed with veins. *Stipulas* lanceolate-pointed, membranous, ribbed. One of the heads stalked, the other sepal.


70. T. alexandrinum. Egyptian Trefoil. Linn. Sp. Pl. 1085. Amoen. Acad. v. 4. 286. Willd. n. 60. Ait. n. 45. Fork. *Egypt.-Arab.* 139.—*Heads* ovate, on axillary *flalks*, longer than the leaves. *Calyx* hairs; its teeth awl-shaped, unequal. Stern erect. Floral leaves opposite. Leaflets elliptic-lanceolate, with shallow teeth. *Native of Egypt*. The root is annual. *Stems* a foot or more in height, naked in the lower half, round, fluted, smooth. *Leaflets* uniform, an inch or inch and half long, somewhat downy, about the length of the *common flalks*. *Stipulas* oblong, veiny, with green leafy awl-shaped points, of their own length. The lowest *leaves* only are opposite, one of them embracing the *flower-flalks*, the other the main *flank*, which rises some inches above it, bearing many alternate leaves, and perhaps more flowers. *Heads* solitary, near an inch long. *Corolla* monopetalous, white; *standard* linear, obtuse, longer than the *wing*, which are marked by a small prominent calloity at their base. *Stigma* downy towards the *standard*.

Forkill says, this is the Trefoil univerally cultivated in Egypt, being the *beef*, and indeed the principal fodder for cattle in that country. It is fown only at the reefs of the Nile; and where the fields are too high to be inundated by that river, they are watered by means of hydraulic engines, the *feeds* being committed to the earth while it is wet. The produce is three separate crops, the plants growing each time about half an ell in height, and there are three months between each harvest. After the last they die. The first crop is the *beef*. When the *Trefoil* is wanted for *seed*, it is fown along with the wheat. Both are gathered at once, by the hand, not reaped or mown, and are threshed out together, the *Trefoil* seed being afterwards sepaed by a forge. Our British agriculturists do not appear to know any thing of this species of *Clove*, which being so important in its own country, might be worth trying, at least, in this. We beg leave to recommend it to their notice. The plant was introduced at Kew, in 1756, by Mr. Hennemann, and we trust its progeny has been continued. For the occupants of low oozy lands in the fens it promises most benefit, provided the Egyptian mode of culture be the most eligible.

71. T. siccum. Siccum Trefoil. Linn. Mant. 276. Willd. n. 61. Fl. Brit. n. 13. Engl. Bot. t. 1049. Tr. of Linn. Soc. v. 2. 357. Jacq. Hort. Vind. v. 1. 24. t. 60.—*Heads* sessile, lateral, roundish, nearly smooth. *Calyx*-teeth lanceolate, acute, recurved, longer than the *corolla*.—Found in the loose blowing sand of the *seacoast* of Sicily and England, *flowering* in June and July. Mr. Wigg first discovered and ascertainment it near Yarmouth. Others have met with the plant, along the coast, from that place to Landguard fort. This little annual species is more truly subterraneous than our n. 29, the *flens* and *flowers* being often buried entirely in dry sand, the leaves only peeping above the surface, so that the species might well remain in obscurity. In smooths and general habit it comes so near to *glimeratum*, n. 65, that we have sometimes doubted its being more than a variety, caused by peculiarity of situation. But the *calyx-teeth* are lanceolate, by no means heart-shaped, and extend considerably beyond the *corolla*, which is closed so as to protect the organs of reproduction, which perform their functions under the dry sand. To provide against accidental, each *legume* has two *seeds*, both which are often perfect. The *petals*, naturally rose-coloured, are rendered whitish by the exclusion of light. The *flipulas* are broad. *Leaflets* wedge-shaped, finely toothed, smooth.

72. T. unfiorem. Dwarf White Trefoil. Linn. Sp. Pl. 1085. Amoen. Acad. v. 4. 285. Willd. n. 62. Sm. Fl. Græc. Sibth. t. 752, unpubl. (T. vernum repens, flore albo exiguo; Buxb. Cent. 3. 18. t. 31. f. 2. Melilotus cretica humilima humifusa, flore albo magno; Tourn. Cor. 28. Spica trifolia; Alpin. Exot. 169. t. 168.)—*Stems* much shorter than the *footstalks*, depressed. Stalks fingle-flowered, aggregate, shorter than the points of the *flipulas*. *Tube* of the *calyx* longer than its awl-shaped teeth. *Native of Syria*. Arabia, and the neighbourhood of Constantinople. Dr. Sibthorp observed it on the loftiest mountains of Crete, as well as in Lemnos, Greece, and Asia Minor. The root is perennial. *Stems* several, most like those of *T. cespitosum*, n. 21, in their depressed position, but full shorter, closely invested with feathering membranous *flipulas*, whose long, green, awl-shaped points extend beyond the axillary *flower-flalks*. The latter, a quarter or half an inch long, grow usuall three together, from one common base, attended by very minute *bracteas*, each of them bearing a large white *flower*, full an inch long, whose *calyx* is tubular, ten-ribbed, nearly smooth, with rather unequal hairy teeth, half the length of the tube, having curved points. *Standard* broadish, erect, emarginate, longer than the *wing* or *keel*. *Footstalks* twice as long as the *flowers*, measuring full two inches, slightly hairy. *Leaflets* broadly obovate, smoothish, strongly ribbed, with fine, sharp, partly hooked, marginal teeth. It is very probable this species may have several *seeds* in each *legume*, and may belong to the second section. This point we want materials to determine.

Sect. 4. VESICARIA. Calyx inflated, seeling after *flowering*.

73. T. spinosum. Bladdery Trefoil. Linn. Sp. Pl. 1085. Willd. n. 63. Ait. n. 47. Sm. Fl. Græc. Sibth. t. 753, unpubl. (T. caule nudio, glomerulus glabris, &c.; Bauh. Hist. v. 2. 379, bad.)—*Heads* ovate. *Calyx* of the *fruit* ovate, tubid, smooth, with bristle-shaped recurved teeth. *Bracteas* membranous, lanceolate. *Stem* and branches *erect*.—*Native of Languedoc, Italy, and Cyprus*, in cultivated fields. *Root* annual. *Stems* numerous, spreading, a span high, leafy, branched, smooth like the whole plant, which has the general aspect of our common purple *Clover*, though totally different when examined. *Flipulas* from two to four inches long. *Leaflets* obovate, frayed, toothed, marked with white. *Stipulas* pale, membranous, ovate, taper-pointed, entire. *Heads* solitary, terminal, ovate or roundish. *Corolla* long and slender, crimson, with a white tube; *standard* ovo-lanceolate, erect, entire. *Calyx* tubular, membranous, flesh-coloured, very smooth, with five nearly equal, green, flender, spreading teeth, one-third the length of the tube. As the fruit advances, the tube becomes inflated, obliquely elliptical, with many red ribs, connected by fine reticulations; the teeth rather unequal, and recurved; the *corolla* remaining dry and hard- ended in the mouth of the *calyx*, and inveting the *legume*, which
which is four-seeded, furnished with a long prominent beak. Each flower has a narrow lanceolate bract; besides the five broader ones under the head. The latter are said to be wanting in T. turdium, Bieberit. Taur. v. 2. 216, which is perhaps a variety, with paler flowers.


75. T. refulsum. Revered, or Salamanca, Trefoil. Linn. Sp. Pl. 1086. Willd. n. 63. Ait. n. 48. (T. folliculatum, five vasciarium, minus, purpureum; Bauh. Hift. 379. T. pratense folliculatum, flore inverso; Barn. Ic. v. t. 73. n. 824. t. 872.)—Heads roundish. Flowers recurved. Calyx of the fruit inflated, oblong, membranous, reticulated, downy, with two terminal spinous teeth. Stems prostrate.—Native of Germany, Flanders, Italy, all Greece, and the Archipelago, flowering in the spring. A smooth annual plant, much agreeing in habit with our English glomeratum, but larger, and the lateral heads of little cripmin flowers are supported by longiflalks. Each flower is turned on its back. The heads in seed are twice as large, being then near an inch broad. Calyx of the fruit much enlarged, split lengthwise, pale green, beautifully reticulated with strong veins, terminating in two teeth only, and be sprinkled with short tawny hairs. Legumes two-seeded. Leaflets obovate, ribbed, ferrated. Stipulas short, abrupt, with lanceolate teeth. We presume T. biacus, Forl. Egypt.-Arab. 139, can hardly be different from the precent species.

76. T. tomensum. Woolly Ball Trefoil. Linn. Sp. Pl. 1086. Willd. n. 65. Ait. n. 49. (T. fragiferum; Rivin. Tetrap. Irr. t. 10. f. 2. T. fragiferum tomentosum; Magn. Monsp. t. 265. t. 264. T. glomerulus tomentosus per caulis longitudinem; Bauh. Hift. v. 2. 379.)—Heads globosae. Calyx of the fruit inflated, globose, membranous, reticulated, denfely woolly, with two minute terminal teeth. Stems prostrate.—Native of the south of France, as well as of Spain, Portugal, Barbary, Greece, and the Levant. Cultivated by Parkinson, before 1640. Ait. Root perennial. Stems numerous, from two to six inches long, branched, prostrate, but not creeping. Leaflets obovate, smooth, obtuse, nearly ribbed, bordered with minutely spinous teeth. Stipulas ovato-lanceolate, pointed. Heads lateral, flatkled, shorter than the leaves and footalks, hemispherical while in flower, in which state the tube of the calyx is very smooth, with three teeth, on the under side; gibbous and woolly on the upper, with two teeth. As the fruit ripens, each head becomes an aggregate ball, half an inch in diameter, of globular, crowded, denfely woolly calceae, exquisitely reticulated with pink veins. Nothing can be more distinct from the lafl, yet their specific characters are not easy to define in a flaking manner. Linnaeus justly remarks, that this speces comes nearer to refulsum, with which its corolla agrees, than to fragiferum, which it so much resembles in fruit. Some copies of Rivinus want the figure above cited, which was added to the plate after its firfl publication.

77. T. fragiferum. Strawberry-headed Trefoil. Linn. Sp. Pl. 1086. Willd. n. 66. Fl. Brit. n. 14. Engl. Bot. t. 1050. Curt. Lond. falc. 2. t. 55. Fl. Dan. t. 1042. Ger. Em. 1288. (T. fragiferum, flore oblongo; Vaill. Parif. t. 22. f. 2.)—Heads roundish, on flalks much longer than the leaves. Calyx of the fruit inflated, globose, membranous, reticulated, nearly smooth, with two awl-shaped, terminal, curved teeth. Stems creeping.—Native of low moist pastures or heaths, especially by rivers, in a black boggy soil, throughout Europe, from Sweden to Greece, and in Asia Minor, flowering in summer. Rosse perennial. Herbage to like T. repens as to be easily confounded therewith, except that the heads of flowers are smaller, and most generally pink; though oftener white in Sweden. Stipulas lanceolate, large, acute, white and membranous, with green veins. The head, when perfecfling fruit, strikingly resembles a hawberry in shape, in size and colour, but being larger than that of the last species, nearly smooth, and more richly coloured with red and green. The two spinous points of the calyx are also far more considerable. Legumes with two seeds. This Trefoil is eaten by cattle, but its crop is late, and of trifling amount.

78. T. phyloides. Bladder-headed Trefoil. Bieberit. Taur. v. 2. 217.—"Heads roundish. Calyx of the fruit inflated, membranous, downy, with five nearly equal bristle-shaped teeth, as long as the tube. Flower-flalks as long as the leaves. Stems procumbent, very smooth."—Native of Georgia. Chev. de Steven. Refembles the last, but is a distinct species. Stems scarcely taking root, long and slender, very smooth, not clothed with scattered spreading hairs as in T. fragiferum, any more than the footalks and flower-flalks. Stipulas narrower, with a longer point. Leaflets larger, and of a brighter green. Flower-flalks shorter. Flowers with partial flalks a line in length, which render the head less dense. Calyx-teeth all nearly equal, resembling the two terminal teeth of the last. Corolla redder; with a longer and narrower standard. Such is the description of the author quoted. The calyx-teeth appear to us to afford the most decided specific distinction. T. fumens of the fame writer is probably, as he auspots, only a more slender variety of his phyloides, with longer flalks, smaller heads, and fewer flowers; but especially smaller calyx-teeth.

Seft. 5. LUPULINA. Standards of the flowers inflaxed.

79. T. montanum. White Mountain Trefoil. Linn. Sp. Pl. 1087. Willd. n. 67. Ait. n. 51. Bieberit. Taur. v. 2. 218. (T. folio longiore, flore albo; Rivin. Tetrap. Irr. t. 12. f. 2. T. pratense album; Fuchf. Hift. 818. 1c. 472. T. majus primum; Cluf. Hift. v. 2. 245. T. majus flore albo; Ger. Em. 118.)—Spikes standard. Roundish. Stalkuald, awl-shaped, withering. Stem erect. Leaflets elliptical, with bristle teeth.—Native of dry mountainous pastures, in Germany, Switzerland, Savoy, and Crete, flowering in August. Dr. Pitcairn is said to have imported it in 1786. The root is woody and perennial. Stems about a foot high, filky as well as the footalks. Lower leaflets broader and obtuse; upper more lanceolate and very acute; all smooth above, light green, nearly ribbed. Heads flatkled, at first hemispherical, but from the drooping of the lower most flowers, as they fade, soon becoming elliptical, and near an inch long. Corolla white. Tube of the calyx pale, hairy about the top only; teeth about as long, awl-shaped, erect, rather unequal, remaining unchanged. The standard, like the other petals, does indeed remain in a dried hardned state, but scarcely more than in T. hybridum, repans, &c. to which the present species is so nearly related in every other respect, and so little like the rest of this feclion, that we could wish to remove it from hence, were not Linnaeus and every other author against us.

TRIFOLIUM.

decumbent.—Found wild on the mountains of Crete, and in the isles of Cyprus and Zant. Mr. Hawkins observed this beautiful Trefoil as the only plant made into hay in the latter country. It might perhaps be tried with advantage in the dry open parts of the south of England. The root is annual, if we may judge by appearances. Herbage rather glaucous, nearly smooth. Stems spreading in every direction, much branched, purplish, about a foot high, but by culture they would certainly become more luxuriant. Leaflets obovate, toothed, emarginate. Striplus lanceolate. Heads numerous, above an inch broad, on axillary flalks, longer than the leaves. Calysk smooth or hairy, its tube very short, and two upper teeth not longer; three lower (Willdenow erroneously says the upper) thrice as long, shorter than the claws of the petals. Standard of a dull but elegant blac hue, strongly ribbed, sharply toothed, withering and permanent, turning brown as it fades. Wings and keel yellow, shorter, the latter very small. The flowers are not reverfed. Willdenow was milled by a dired specimen.


84. T. minus. Lesser Yellow Trefoil. Relb. Cant. 290. Fl. Brit. 1403. Compend. 111. Engl. Bot. t. 1256. Ait. n. 55. (T. filiforme; Fl. Brit. 793.; T. filiforme; Ehrh. Herb. n. 49. T. procumbens; HUD. 318. Curt. Lond. fac. t. 14. T. lupulinum alterum minus; RAI. Syn. 533. t. 14. f. 3. T. luteum minimum; GER. 1186.) Heads hemipherical. Flower-flalks straight and rigid. Standard nearly smooth. Stems prostrate. Common footstalk very short below the leaflets.—Very frequent in dry gravelly pastures, of England, Germany, and Switzerland, flowering in June and July. Root small, annual, often furnished with little flabby knobs. Stems but little branched, from six to twenty-four inches long; most succulent and brittle in the larger variety, Engl. Bot. f. 1, which Dr. Becke recommends as likely to prove a most valuable plant, for cultivation in upland pastures, being highly acceptable to cows and sheep. The central leaflet is elevated on a much more considerable parallal flalk than in the foregoing or the following species, while the common footstalk, though variable, is in general remarkably short. Leaflets obovate and emarginate, or obcordate, serrated. Flowers from twelve to fifteen only, pale yellow, making a little hemipherical head, and all finally deflexed. Standard scarcely wrinkled or furrowed. Legea small, elliptical, singe-leafed. See the next species.
ohovate, obtuse. Seeds rarely more than one in each legume. Calyx-teeth very unequal, taper, hairy. Linnaeus confounded this with the preceding, as appears by his herbarium. Others have thought it not distinct from the following; but we trust both those mistakes are now sufficiently cleared up.

85. T. siliforme. Slender Yellow Trefoil. Linna. Sp. Pl. 1088. Fl. Suec. ed. 2. 261. Wild. n. 72. Fl. Brit. 1424. Engl. Bot. t. 1257. (T. lupulinum minimum; Dill. in Rait Syn. 331. t. 14. f. 4.)—Heads lax, of few flowers. Flower-flats capillary, wavy. Smooth, staminal. Stems prostrate. Leaflets all nearly sessile.—Native of rather moist gravelly pastures, among short grass, in Scania, as well as in England, flowering in June and July. Annual, like the last, but usually more prostrate, and much smaller, discoverable chiefly by its little yellow heads of flowers, entangled by its capillary flaks, among the radical leaves of short grass, on grass-plats, where the soil, though gravelly or sandy, is somewhat moist, and prone to bear mofs. The stems are about a finger's length, numerous, slender, and branched. Leaflets narrow, nearly or quite sessile, on a short common stalk. Flowers from three to eight, drooping, each on a very slender, though elongated, partial stalk, and all leaning toward one side. Calyx quite smooth; its teeth less remarkably disproporionate than in T. minus. Leaves obovate, sometimes two-leaved, scarcely covered by the withered pale-brown corolla, whose standard is not at all furrowed. Sometimes the size of this species exceeds that of the smaller variety of the last; but if the above characters be attended to, no confusion can arise.


Linnaeus, at the end of this genus, classifies the various species according to their inflorescences, whether racemose, umbellate, fasciculate, capitate, or spiked; which serves to shew the impropriety of any generic character derived from thence.

TRIFORIUM, the gallery which usually goes round a church of the pointed style, over the side-aisles, so called by Gervafius and other ancient writers.

TRIFORIUS, in Mythology, an epithet given to Diana; which see.

TRIGA, in Antiquity, a kind of car, or chariot, with three horses.

The trigia, in reality, was only drawn by two horses; so that it was properly a biga; but it had, besides, a third horse tied to the others, like a led horse, for change. Statius calls the third horse, equus funalis; Hefychius, παλαιος; and Dionysius Halicarnassensis, στρις.

We do not find the trigia on any ancient monument; but it was a long time in use among the Romans, at their lati Circensia. The Greeks, who first introduced it, soon abandoned it.

TRIGAL, or TRIGA, in Geography, a town of Prufia, in Natangen; 9 miles S. of Lick.

TRIGAMY, a third marriage; or the state of a person who has been married three times.

In the ancient church, trimagia was only allowed to such as had no children by their former marriages.

If, having children by one or both the former, they married again, after forty years of age, they were excluded from communion for five years. If they were only forty years old, the penance was but four years. See Bigamy.

TRIGAUULT, Nicholas, in Biography, a Jefuit missionary, was born at Donuar in 1576, and having entered into the Society of Jefus, was sent, in 1610, on a mission to the East Indies. After a year's residence in China, he came to Europe for a recruit of missionaries, and returned with forty-four associates. At length his life and labours terminated at Nanking in 1628. Of his works, which were numerous, we shall only mention his treatise entitled De Christiana Expeditione apud Sinas et Matthi Ricci Commentarium, etc., 1615, 4to.


TRIGEMINI Nervi, in Anatomy, the nervae of the fifth pair of the head. See NERVE.

TRIGINTAL. See TRIDENTAL.

TRIGA, or GUNNARD, in Ichthyology, a genus of fish of the order of the Thoraciz; the characters of which are, that the head is large, mailed, and marked by rough lines; the eyes large and round at the vertex; the mouth large; the palate and mandibles armed with sharpened teeth; and the nolabris double; the aperture of the branchia or gills large; the gill-cover (piny), and the gill-membrane ventrally; the body covered with scales, wedge-formed; the back straight, with a longitudinal furrow on both sides; the lateral line near the back, straight; the abdomen thick, the ventral and pectoral fins large, and, in some species, near the pectoral fins are finger-shaped processes.

Species.

CATAPHRACIA; Red Gunnard. With double fingers; forked elongated fin, and octagonal mailed body: its length is about twelve inches; the longitudinal rows or divisions of the body are marked by many serrated or aculeated lines; beneath the throat is a pair of ramified cirri; the pectoral fins and tail are pale-brown; the other fins pale-yellow, and nearly transparent; rays of the first dorsal fin running out beyond the membrane. A native of the Mediterranean.

LYRA; Red Gunnard. Silvery beneath, with triple fingers, and bifid denticate fin. This is the Piper of the Britifh Zoology. Its length is from one to two feet more; its lateral line formed of small scales; its scales are small, pectoral fins large, slightly tinged with dull blue; tail of like colour; the other fins yellowish, with red rays. Native of the European seas, and considered as an excellent fish for the table.

GURNARDUS; Grey Gunnard. With triple fingers, and lateral line mailed with rounded whitish scales; length the same; that of the former; colour above deep green, with blackish and red spots, beneath silver; scales small, lateral line strongly marked with a series of larger, rounded, whitish scales, with a dusky central spot. Native of the European seas, and not uncommon about our own coasts, feeding on worms, insects, &c.

CUCULUS; Red Cuckow Gunnard. Silvery beneath, with triple fingers, and first dorsal fin marked by a black spot: elegant species, about a foot in length, of a more slender shape than the lat; colour on the upper parts a beautiful red, more or less distinctly marked by whitish transverse bars; scales extremely small; lateral line composed of pointed white scales edged with black, and a simular row on each side of the back; fins transparent; the first dorsal marked on the edge by a black spot, the second tinged near its edge with yellow. Native of the European seas, and esteemed as a food.

LUCERNA; with triple fingers, sub-bifid fin, and lateral line bifid at the tail. Native of the Northern seas, and conjectured to be a variety of T. hirundo.

HICUNDO; Grey-brown Gunnard. Silvery beneath, with triple fingers, and very large ovalicose pectoral fins spotted with...
with blue: the Sapphiric gurnard of the British Zoology; and stock-fish of Willughby. Of the same size with the grey gurnard; scales middle-sized, lateral line rough, pectoral fins very large, of a violaceous olive, sometimes richly edged and spotted with blue. Native of the European seas, occasionally springing out of the water to some distance by means of its large pectoral fins.

Lineata; Red Gurnard. Marked above by dusky-fanguine spots, with the body crossed on each side by numerous perpendicular lines: the streaked gurnard of the British Zoology. Size and habit of T. cucusulus; colour bright-red, abdomen silvery; on each side of the back, close to the base of the dorsal fins, a row of broad, serrated, short processes of a yellow colour; lateral line formed by a row of similar ones; scales small, sides above and below the lateral line marked into very numerous, narrow perpendicular divisions; pectoral fins large, rounded, of a dusky-brown, spotted with black; rest of the fins yellowish, with a tinge of red, especially the tail, which is slightly natived. Native of the Mediterranean sea.

Asiatica; Silvery Gurnard. With quadruple fingers; body smooth, finnot smooth and prominent; anterior gill-covers serrated; pectoral fins calcuated. Native of the Indian seas.

Evolans; Springing Gurnard. With triple fingers, and three serrated spines between the dorsal fins; allied to the T. volitans, but furnished with three separate pectoral processes; the pectoral fins very large, but less than those of the next species; the pectoral fins blackish. Native of the American seas.

Volitans; Red Gurnard. With aculeated scales, very large pectoral fins spotted with blue, and septral fingers connected by a membrane; the Miltus of Salvian, Albovandus, Willughby, &c. This is a highly fingular and beautiful species; length about twelve inches; colour crimson above, pale or whitish beneath; head blunt, armed on each side with two very strong large spines, pointing backwards; the whole body covered with very strong carinated and sharp-pointed scales, hardly separable; first dorsal fin pale violet, crossed with deeper lines, and at its origin two separate rays longer than the rest; second dorsal fin pale, with the rays barred by brown; pectoral fins very large, transparent, of an olive-green, richly variegated with numerous bright-blue spots, fix pectoral processes separate, but united, and appearing like a small fin on each side of the thorax; tail pale violet, with the rays crossed by dusky spots, and strengthened on each side of the base by two obliquely transverse bony ribs or bars. Native of the Mediterranean, Atlantic, and Indian seas, where it swins in shoals, and is often seen flying out of the water to a considerable distance.

Japonica, or Alata; the Japanese Gurnard. With eleven fingers on each side, paleated by a membrane. About four inches in length; head angular; lower jaw and hinder margin of the gill-covers furnished with two strong spines. Native of the Japanese sea.

Adriatica. With the body verticillated by scales, with aculeated lateral line; pectoral fins black beneath, and triple fingers; supposed to be a variety of T. lineata, and differing from it by being varied with bands of black spots, and having the spots of the pectoral fins dispersed into two transverse bands, the edges being marked beneath by a row of blue spots. Observed in the Adriatic sea.

Minuta. With triple fingers, and bicipitae back. A small species: head hard and rough, emarginated and denticulated in front, and furnished with two spines above the eyes; posterior gill-covers spiny; pectoral and ventral...

Obi. Gartner and Brown, perhaps more justly, consider the fruit as an assemblage of three or five single-fedded capsules, without valves. Analogy confirms this opinion. Eff. Ch. Calyx of three leaves. Petals three, like the calyx. Styles none. Capsule superior, of three or fix cells, separating at the base. Seeds solitary.


3. T. mexicannum. Mexican Arrow-grafs. Kunth Nov. Gen. and Sp. v. 1. 244.—Capsules of fix cells. Spike very long. Leaves cylindrica. Root tuberos.—Native of moift upoloped situations in New Spain, flowering in January. Root perennial, oblong, horizontal, the thickens of a fwan’s quill, very denfely clothed with the rudiments (rather probably the remains) of leaves. All the leaves are radial, linear, narrow, blunthifh, smooth, two or three inches long, feathering at the bafe. Stalk erect, round, smooth, fix or eight inches high, including its eleyter, which measures half as much. Stamens fix. Stigmas red. Two or three of the cells, or capsules, are generally abortive. Kunth.

4. T. procera. Tall Arrow-grafs. Brown n. 1.—“Capsules of fix cells. Stigmas linear, recurved. Spike very long. Leaves linear, rather cylindrical at the bafe.”—Found by Mr. Brown, near Port Jackfon, as well as in the tropical part of New Holland.


7. T. dubium. Doubtful Arrow-grafs. Brown n. 2.—“Capsules of three, oblong-cylindrical, distinct cells; one or two of them here and there abortive. Spike elongated.”—Gathered in the tropical part of New Holland by Mr. Brown.


TRIGLOCHINE, in Anatomy, a fynonym of the tripyridval pide. See TRICUSPID.

TRIGLYPS, formed from τρίγλυπος, q. d. three engravings, from τρίς, sculp, in Architecture, a sort of ornamentals repeated at equal intervals in the Doric freeze. Each triglyph consists of two entire gutters, or channels, cut to a right angle, called glypha, and separated by three interlines, called by Vitruvii femora, from each other, as well as from two other half-channels which are at the fides.

The ordinary proportion of triglyphs, is to be a module broad, and one a half high. But this proportion, M. le Clerc observes, sometimes occasions ill-proportioned interculomations in the porticoes; for which reason he chooses to accommodate the proportion of his triglyphs to that of the interomulation.

The intervals between the triglyphs are called metopes.—Under the channels, or glypha, are placed guttae, or drops.

The triglyphs make the most distingjuishing character of the Doric order. Some imagine them originally intended for the conveyance of the guttae that are underneath them; others fancy they bear some resemblance to a lyre, and thence conjecture the ornament to have been originally invented for some temple faced to Apollo. See DORIC.

TRIGLYPH, Capital of a. See CAPITAL.

TRIGLYPTON, in Ancient Geography, a town of Italy, on the other fide of the Ganges, in the country called Randa-marcotta.

TRIGNO, in Geography, a river of Naples, which runs into the Adriatic, 12 miles N.W. of Ternoli.

TRIGOLO, a town of Italy, in the department of the Upper Po: 5 miles S.E. of Crema.

TRIGON, Trigonius, formed from τρίγωνος, triangle, in Geometry, a triangle. TRIGON, in Astrology. See TRIPLICITY.

TRICON, in Astronomy, denotes an aspect of two planets, wherein they are 120 degrees distant from each other; this is called also trine.
The trigons of Mars and Saturn are by astrologers held
mallic aspects.

The Trigonum, was also a musical instrument, used
among the ancients. The trigon was a kind of triangular lyre, or harp, and
was invented by Ibycus. It was used at feasts, and played on by women, who
struck it either with a quill, or beat it with small rods of different lengths and weights, to occasion a diversity in the sounds. See Trigonum.

Trigon or Triangle of Signs, is the name of an instru-
ment used for drawing the arcs of the signs upon dials: it may be made of brafs or any other solid matter, and of any size at pleasure. This instrument is constructed after the following manner: first draw the line a b (Plate XXXI. Astronomic, fig. 5) representing the axis of the world, and a e perpendicular to it, representing the radius of the equi-

cocial; and about the point a describe the circular arc d e c at pleasure. Then reckon 23\(^{1/2}\) both ways from the point e upon the said arc for the sun's greatest declination, and draw the two lines a d, a c, for the summer and winter tropics: likewise draw the line d e, which will be bisected by the radius of the equinoctial in e; about which point, as a centre, draw a circle, whose circumference passes through the points d and e of the tropics, and divide the circumference into 12 equal parts, beginning from d: through each point of division equally distant from d and e, draw occult lines parallel to the radius of the equinoctial circle: these lines will intersect the arc d e in the points, through which and which the centre a, lines being drawn, will represent the beginnings of the signs of the zodiac at 30° distance from each other. But to divide the signs into every 10th or 5th degree, the circumference must be divided into thirty-six or seventy-two equal parts. The characters of the signs are annexed as in the figure; and when the trigon is divided into every 10th or 5th degree, the letter of the month is placed to the 9th or 18th of each sign agreeing with it. However, this instrument may more readily be made by means of a table of the sun's declination; for having drawn the two lines a b and a c at right angles, lay the centre of a protractor on the point a, with its limb towards the point c; and keeping it fixed, count 23\(^{1/2}\) on both sides of the radius a e for the tropics of \(\phi\) and \(\phi^2\), 20\(^{1/2}\) for the beginnings of the signs \(\beta\), \(\gamma\), \(\delta\), and \(\epsilon\); and 11° 30' for \(\zeta\), \(\eta\), \(\iota\), and \(\kappa\). And thus the spaces for each sign may be graduated in every 10th and 5th degree by means of a table. The equinoctial points of \(\pi\) and \(\omega\) are placed at the end of the radius of the equinoctial a e. Trigon of Diurnal and Nocturnal Arcs. These are drawn upon sun-dials by curve-lines, like the arcs of the signs, and by means of them the shadow of the figure shows how many hours the sun is above the horizon, in any given day, &c.

The trigon of signs is the name for all latitudes, the sun's
decimation being the same for the whole earth; but the diurnal arcs are different for every particular latitude, and as many of these arcs are drawn upon a dial, as there are hours of difference between the longest and shortest days of the year. For the construction of this fort of trigon, draw the right line R Z (fig. 6) for the radius of the hour-line of 12, or of the equinoctial; and about the point R, with any opening of the compasses at pleasure, describe the cir-
cular arc T S V, and lay off both ways on it from the point S two arcs, S V, S T, each equal to the complement of the latitude. Then draw the right line T X V, about the point X, a as a centre, describe the circumference of a circle T Z V Y, which divide into forty-eight equal parts by dotted lines, drawn parallel to the radius of the equinoctial R Z: then these lines will intersect the diameter T X V in points, through which and the point R you may draw the radii of the trigons. The angles which all the radii make at the point R may be found trigonometrically by the following proportion: as radius is to the co-tangent of the latitude, so is the tangent of the difference between the meridional arc at the time of the equinox, and the arc propounded to the tangent of the sun's required declination.

The trigon of signs may be annexed to a rule or index. A (fig. 7.) in order to draw the arcs of the signs upon great
dials. The diurnal arcs may be drawn likewise upon this trigon, but the arcs of the signs and diurnal arcs too must
not be drawn upon one and the same dial, for avoiding con-
fusion. In the centre of the index there is a small hole, through which is put a pin, that the instrument may turn about the centre of a dial. The trigon slides along the in-
dex, and may be fixed in any part of it by means of the screw B. The arcs of the signs with their characters are
round about the circumference, and there is a fine thread fixed in the centre, in order to extend over the radii quite to the hour-lines of a dial.—For a farther account of these instrumens and their use, see Bion's Conatr. and Use of Math. Instr. by Stone, p. 231, &c.

TRIGONAL LEAF, among Botanists. See LEAF.

TRIGONAL NUMBERS. See TRIANGULAR NUMBERS.

TRIGONELLA, in Botany, the diminutive of trigona,

Gen. Ch. Cal. Perianth inferior, of one leaf, bell-shaped, divided half way down into five little, awl-shaped, nearly equal, teeth. Cor. Papilionaceous, apparently tripetalous; standard nearly ovate, obtuse, reflexed and spreading; wings two, ovate-oblong, reflexed and spreading outwards, in such a manner that, with the standard, they almost con-
stitute a regular tripetalous corolla; keel very short, obtuse, occupying the centre of the flower. Stam. Filaments in two distinctlets, one simple, one in nine segments, short, ascendency; anthers simple, roundish. Pist. German ovate-
oblung, compressed; style simple, ascending; stigmas simple. Peric. Legume linear-oblong, compressed, much longer than the calyx, of one cell, and two valves. Seeds numerous, roundish.

EE. Ch. Standard and wings nearly equal, spreading,
in the form of a tripetalous corolla. Stigma smooth. Le-
gume of one cell, with many seeds, compressed, longer than the calyx.

Obf. Linnaeus remarks that the figure of the corolla alone is this a distinct genus. We could with that character were more evident. The closest affinity exists between some Trigonella, which we shall indicate, and the Meliloti, constituting the first section of Trifolium. See that article.

The species of this genus, seventeen in Willdenow, are her-
aceous, for the most part annual, fring-mat-ented plants, with three leaflets on a stalk, and indeed the general habit of Trifolium. Their flowers are tufted rather than properly capitace, usually yellow. T. Fœnum græcum has blueish
flowers, which are quite feasible, or truly capitace, their distance that of a Trifolium, and their beaked legume splitting chiefly along its upper margin. This species certainly does not well accord with the rest.
TRIGONELLA.

1. T. ruthenica. Small, or Ruffian, Fenugreek. Linn. Sp. Pl. 1093. Wildl. n. 1. Ait. n. 13; excluding the synonym of Gmelin, which Linnaeus subfequently discovered to belong to Medicago falcata. (Lotus n. 156; Amm. Ruth. 119, and Melilotus n. 155; ibid. 120.)—Legumes flaked, crowded, drooping, linear-lanceolate, straight. Leaflets lanceolate-obovate, abrupt, with three terminal teeth.—Common throughout Siberia. A hardy perennial, flowering in June and July, sent by the Siberian botanist Amman, to Miller, before the year 1749. Herb nearly smooth. Stems numerous, spreading or decumbent, much branched, round, leafy. Leaves alternate, flaked, of three narrow, delicate leaflets, tapering and entire towards the base, toothed about the extremity; the odd one largest, an inch long, on an elongated partial stalk. Stipulas small, awl-shaped. Flowers yellow within, purplish externally, in short, axillary, capitulate clusters. Standard broad, almost orbicular. Calyx hairy, bell-shaped, with five lanceolate, rather unequal, teeth. Legume half an inch long, compressed, with four or five kidney-shaped seeds. We know of no figure of this species.


3. T. hybrida. Mule Fenugreek. Pourret in Act. Talof. v. 3. 331.—Legumes flaked, rather crowded, pendulous, half-oval, compressed, reticulated with prominent veins. Stem diffuse. Leaflets roundish-obovate, nearly entire. Native of the south of France. A specimen from the author cited this new to be nearly related to the last; but the legume, though full-grown, is but one-third of an inch long, most elegantly marked with elevated reticulations. The leaves too are smaller, and feebly toothed or wavy.

4. T. friata. Striated, or Abyssinian, Fenugreek. Linn. Suppl. 340. Wildl. n. 3.—Legumes umbeltate, linear, compressed, incurved, reticulated; their common flake much shorter than the leaves. Leaflets wedge-shaped, toothed.—Native of Abyssinia, according to the herbarium of Linnaeus, who cultivated the plant at Upfal. Root annual. Stems square, diffuse. Leaflets half an inch long, ribbed, sharply toothed, as well as the stipulas. Flowers light yellow, about six in each long-flaked head, or umbel. Legumes an inch long, narrow, slightly hairy, with five or seven seeds.

5. T. puletrata. Many-horned, or Spanish, Fenugreek. Linn. Sp. Pl. 1093. Wildl. n. 4. Ait. n. 3. (Fennum gracum sylvestre; Ger. Em. 116. 6. Lob. t. 1c. v. 2. 43.)—Legumes nearly sessile, crowded, erect, nearly straight, longer than the leaves; the common flake pointless.—Native of Spain, Italy, and France. Cultivated in the middle of the seventeenth century. Annual. Stem branched from the bottom, diffuse, twelve or eighteen inches long. Leaflets ovate, toothed. Flowers yellow, three or four together in little, axillary, almost sessile, heads. Calyx hairy, as well as the young leaves. Legumes three or four, an inch and half long, narrow, clothed with close hairs, and beautifully reticulated.

6. T. hamoja. Hooked Egyptian Fenugreek. Linn. Sp. Pl. 1094. Wildl. n. 5. Ait. n. 4. Sm. Fl. Græc. Sibth. t. 764, unpubl. (Mellilotus aegyptius, Alchime- lech vocatus; Alpin. Egypt. 122. t. 124. Bauh. Hift. v. 2. 357.)—Legumes racemose, flaked, declining, recurved, nearly cyindrical, even, hairy; their common flake pinous, longer than the leaf.—Native of Egypt, from whence the Linnaean specimen was brought by Halfiquili. Dr. Sibthorp met with it in Cyprus. A small, diffuse, annual, hairy herb, whose leaflets are wedge-shaped, strongly toothed, on a long common stalk. Flowers deep yellow, fragrant, in flaked clusters, half an inch long. Legumes an inch long, curved into a semiflare, quite deflitate of reticulations, both futures peculiarly dim, half-oval; the flowers green and very hairy. The seeds are said to be used by the Egyptians, in fomentations, for all kinds of pains.

7. T. tartu. Twisted Egyptian Fenugreek. —Legumes umbeltate, cylinndrical, twisted, reticulated; their common flake much shorter than the leaves. Leaflets inerfiely heart-shaped, toothed, obscurely ribbed.—Native of Egypt, from whence Dr. Dehile favoured us with wild specimens, under the name of hamoja, but they do not agree with the Linnaean speciemen, nor with the specific character, any more than with the figure in alpinus, as far as any thing can be determined therefrom. The plant of Dr. Dehile is as smooth as possible in every part. Its stems round, branched, firm, hardly a span high. Leaves on long footstalks, rather flathy; leaflets all of equal size and shape, one-third of an inch long; the odd one on a stalk nearly its own length. Flowers yellow, drooping, five or fix in each axillary umbel, whose flake is not half the length of the adjoining common footstalk, and, after flowering, becomes very flout, round, and firm. Legume drooping, rarely more than half an inch the rigid, pale, slightly twisted spirally, quite deflitate of hairnefs, but marked with peculiar oblong reticulations of elevated veins.

8. T. flexuosa. Zigzag Egyptian Fenugreek. Delile Epypt. MSS.—Legumes in nearly sessile umbels, compressed, reticulated, zigzag. Leaflets inerfiely heart-shaped, toothed, obscurely ribbed.—Native of Egypt. A figure of this plant was defined, under the above name, for the great work on Egypt, but we have not heard that it has proceeded so far. This species very closely accord with the laft in habit, and precisely in foliage, but the umbels are nearly sessile, flowers smaller, calyx-teeth longer and more pointed. The legumes are essentially different, not only in their compressed figure, but in being strongly folded, or plated, as it were, into a zigzag poliftion. If expanded, they might possibly equal the length of the laft. Both appear to be annual, and perhaps grow prostrate.


11. T. armata. Thorny-branched Cape Fenugreek. Thunb. Prodr. 137. Wildl. n. 8.—"Legumes lateral, hairy. Leaflets ovate, smooth. Branches becoming pinous."—Native also of the Cape.—We have no further information concerning the three last species.

12. T. spinosa. Thorny-flaked Fenugreek. Linn. Sp. Pl. 1094. Wildl. n. 9. Ait. n. 5. (Fennum gracum...
TRIGONELLA.

cum sylvicole polycraton majus creticum; Brey. Cent. t. 32. f. 1.) — Legumes linear, declinating, compressed, falcate, tranversely veiny, two or three on each very short, axillary, spinous-tipped flanks. — Native of Crete. A hardy annual, cultivated in England above one hundred years ago, flowering in July and August. The flens divides at the base into several rather slender, smooth, simple, diffuse branches, a span long. Leaffets obovate, toothed, emarginate, equal, tapering at the base. Flowers small. Legumes naked, an inch and a half long, narrow, with tranverse, interbranching, but scarcely reticulated, veins. Their length exceeds that of the leafer and footflakes. 13. T. corniculata. Horse-hoe Fenugreek. Linn. Sp. Pl. 1594. Wildl. n. 10. Ait. n. 6. Sm. Fl. Grz. Sibth. t. 767, unpublished. (Melilotus italicus; Fuch. Hist. 528. M. major; Trag. Hist. 592. M. coronata; Ger. Em. 1205.) — Legumes numerous, crowded, declining, compressed, falcate, tranversely veiny, on a spinous-tipped axillary flanks, longer than the leaves. — Native of the south of Europe. A hardy annual, cultivated by Gerarde, flowering in June and July. The flens are numerous, a foot high, nearly erect, zigzag, leafy, and many-flowered, smooth, or a little hairy. Stipulas nearly entire. Leaffets obovate, toothed. Flowers-flasks spreading, stout, each bearing a dense, umbellate tassel, of about ten yellow, highly fragrant flowers, like a little Coronilla. Corolla thrice the length of the calyx. Legume only an inch long, though twice as broad as the leaf, which it imitates in the style of its veins. Seeds kidney-shaped, rough. The modern Greeks know this Trigonella by the name of melon. Dr. Sibthorp observed it in Rhodes, the Morea, and other places in the Levant. 14. T. elatior. Tall Fenugreek. Sm. Prodr. Fl. Grz. Sibth. n. 1830. Fl. Grz. t. 762. (Melilotus syriaca odora; Lob. Eu. v. 2. 42. f. 2. Trifolium italicum, five Melilotus italicus, corniculis incurvis; Bauh. Hist. v. 2. 372. f. 2. Lotus sylviculus, ex codice caesaro; ibid. 373.) — Legumes racemose, pendulous, linear, slightly curved; their flanks longer than the leaves, pointless. Stem erect. Stipulas lanceolate, toothed. — Found by Dr. Sibthorp in Aisa Minor, and the isle of Cyprus. Annual. The flens is twice or thrice as tall as the leaf, and less zigzag. Leaffets three or four times as large, often an inch long, obvate, but varying in breadth, sharply toothed, except about the base. Stipulas copiously and deeply toothed, or jagged. Flowers and legumes in clusters about an inch in length; their common flanks of a longer proportion than the foregoing, the flanks of the spinous point. Legumes compressed, nearly or quite straight, and, as far as we can judge of them, in a half-tube flaps, not marked with elevated veins. Seeds six or seven. A specimen of this is attached, in the Linnæan herbarium, to the coriculata, from which it is very diffignate, and, except its legume and seeds, more nearly allied to the Meliots, (see Trifolium, sect. 1.) than to any other Trigonella. Dr. Sibthorp very justly suspected the Alos crassus of Dioscorides to be T. coriculata, or near it; nor can we doubt this T. elatior being the very plant. If the famous old manuscript at Vienna be admitted as authority, it confirms our opinion. The figure in John Batah, copied from thence, though rudely and unscientifically drawn, is sufficiently indicative of this species. From what occurs, here and there, in the old botanical writers, this Trigonella, neglected by modern syllemaneists, appears to be not of rare occurrence in the south of Europe, and may possibly be met with in botanic gardens. It is well worth the notice of the farmer, for experiment at least, on account of its luxuriant growth, and the quality of many plants to which it is related; as they may possibly be found in great perfection in this species. 15. T. piscata. Spiked Fenugreek. Sm. Prodr. Fl. Grz. Sibth. n. 1831. Fl. Grz. t. 763. unpublished. — Legumes spikèd, pendulous, short, hairy, on a spinous-tipped axillary flanks, longer than the leaves. Stipulas awl-shaped, entire. — Gathered by Dr. Sibthorp in the isle of Seriphius. This is an annual species, with many flens, about a foot high, which partakes of the same ambiguity, respecting the Meliots, as the foregoing. At least the shortests of the legumes, and consequent small number of seeds, aswers belt to Trifolium. But we want certain information on this point, having not seen any rape fruit. The habitat of the plant, especially the spinous flower-flanks, belongs to Trigonella. The leaffets are half an inch in length, obovate-oblung, narrow, smooth, serrated. Flowers yellow, in crowded eflayers resembling spikès, half an inch long, becoming afterwards twice that length, befit with the numerous reflexed beaks of the crowded pendulous legumes. The lowest tooth of the calyx is very short; the four others long and awl-shaped. 16. T. parviflora. Small-flowered Fenugreek. — Legumes in capitade clusters, ascending, linear-lanceolate, compressed, flighty curved, with about two seeds; their flasks as long as the leaves, pointed. Stem ascending. Stipulas ovate, pointed, toothed. — Found by M. Du Cros, in a meadow near the mill of Coinhus, in Switzerland. The flens are a span high, decumbent at the base. Size and aspect of the plant like T. monspeliaca, hereafter described, but some of its characters accord more with elatior, to which it has other-wile little resemblance. The flanks, calyx, legumes, and young leaves, are more or less silky. Leaffets broadly ovate, the lower ones rather quadrangular, none more than half an inch long, most of them less; all toothed, ribbed, of a light green. Flowers very small, yellow, on partial flanks as long as themselves, collected into hemispherical silky heads. Calyx-teeth lanceolate, as long as the corolla, somewhat unequal. Legume half an inch long, curved upwards, veinless, contracted at each end, containing only one or two seeds. This species seems to have escaped the notice of all authors that have fallen in our way. It was sent for coriculata, but the legumes are totally different, and the flowers not a quarter fo large, neither is the flens zigzag. 17. T. monspeliaca. Trailing Fenugreek. Linn. Sp. Pl. 1585. Wildl. n. 11. Ait. n. 7. — Walth. et Kitab. Hung. v. 2. 152. f. 142. Sm. Fl. Grz. Sibth. t. 765. unpublished. (Fenugreacum polycraton; Riv. Tetrap. Ir. t. 82. F. minus monspeliaca; Brey. Cent. t. 33. f. 2. Securidaca genus triphyllon; Bauh. Hist. v. 2. 373.) — Legumes spreading, crowded, curved, compressed, hairy, obliquely veined, shorter than the leaves, on a very short pointed flanks. Stems prostrate. — Native of the south of France, Hungary, Switzerland, Greece, Cyprus, and Asia Minor. A hardy annual with us, sometimes cultivated for curiosity, flowering in June and July. Stems quite flat on the ground, hardly a span long, a little hairy, like the rest of the plant. Leaffets sharply toothed; their common footflanks an inch long. Flowers deep yellow, twice the size of the last. Calyx hairy, with rather unequal teeth, scarcely half so long as the corolla. Legumes declining, not an inch in length, pretty marked with oblique transverse ribs, and clothed with scattered close hairs. Seeds several, rough. 18. T. alba. Smooth Cape Fenugreek. Thunb. Prodr. 147. Wildl. n. 125. — " Legumes umbellate, reflexed, smooth. Leaffets ovate, smooth, toothed." — Found by Thunberg, at the Cape of Good Hope. We have not seen
seen this plant. If the leaflets are really ovate, not obovate, it is a very remarkable species indeed.

mens of this rare species was sent by Burmann, with the above synonym, by which we learn that it was gathered in Egypt by Lippi, who did not live to publish his discoveries. (See Lippi.) This is a flender, delicate, smooth, apparently decumbent, plant, resembling *Medicago lacinia*. The leaflets are about six inches long, unbranched, angular. Leaflets a quarter of an inch long, abrupt, ribbed, very deeply and sharply toothed at the end. Stipulas piliferate, acute. Flower-flats axillary, shorter than the foot-flats, tipped with a small point. Flowers from three to six, yellow. *Calyx* pale, slightly hairy, with awl-shaped teeth of its own length. *Legume* twice the length of the calyx, minutely reticulated, rather hairy, acute at each end.

ders of fields about Madrid, flowering in May. Its seeds were brought from thence to Kew, by the late marchioness of Bute. This little annual species is closely related to the laf, being of the fame size, with several quadranular flemas. But the leaflets are more oblong, and deeply pinnatifid, not merely cut about the extremity. Flowers from three to five in the bolum of each leaf, on very short flats, pale yellow. *Calyx* like the leaf. The legumes, as Cavallines observes, are totally different, an inch or more in length, very narrow, flably curved, with many feds. Only two or three legumes seem to be perfected, though the flowers are described as rather numerous.


—Native of the fouth of Europe. Dr. Sibthorp found it plentifully on the shores of Aja Minor, as well as in Rhodes and Cyprus; more sparingly on mount Hymentus near Athens. It has long been cultivated for the fake of its seeds, which from the days of Dioscorides have been thought cooling and detergent. Their fcent is very powerful, refembling Melilot; which renders them disagreeable in fomentations and cafaplains, the only ufe for which they have been retained in the apothecaries' shops. They are now nearly exploded. (See Fenugreek.) The herbage is used in fome European countries for fodder. The root is annual. Stems various in luxuriance and direétion, from one to two feet long, reddifh, flat, leafy and hairy. Leaflets inverfely heart-shaped, various in fize from a quarter of an inch to an inch, miffly smooth, of a deep, rather glaucous, green, more or less toothed. Footflats hairy, rather longer than the leaflets. Flowers two or three, axillary, fopples, yellow, white, or pale blue; standard an inch long, emarginate, erect; wings and keel much shorter, by no means affinering to the generic character. *Calyx* hairy, with awl-shaped, nearly equal, teeth. *Legume*, in a wild flat, about an inch long, veiny, a quarter of an inch broad, tapering into an oblique beak, longer than itfelf, but very varied in that refpect: in the cultivated plant, the length of the legumes, containing above a dozen feds, greatly exceeds that of the beak. Dr. F. Buchanan, in his Journey through the Myfors, v. 1. 374, relates, that the herb, known by the name of *Mentha*, cultivated in gardens, is always ufed green. When fown for the feed, as grain, the ground is plowed twice at the fame feaon, and divided into plots like a kitchen-garden. The feed is fown, covered by hand, and according to the nature of the foil, and watered once in ten or fifteen days. "The ripe feed," fays this author, "fells very high, and is reckoned the moft delicate kind of pulfe. The young leaves are ufed as greens, and the un-
ripe legumes put into Curtseys." We find these feeds are one ingredient in the receipts for Curry powder, communicated from India. *T. gladiana*, Bieb. Taur. v. 2. 222, muft be preferred a variety of the species before us.


—Native of the Eaf Indian, from whence its feeds were fent by Dr. Roxburgh to Kew, in 1703. An annual fow plant, flowering in July and Auguf. The whole herb is minutely hairy, or fiky. Stems a foot long, round, branched. Leaflets obfavo, narrow, three-quarters of an inch long, all equally near febile, on a flalk of their own length. Flowers small, yellow or reddifh, drooping, on very short flats, ufually two together, from the bofoms of the leaves. *Calyx*-teeth lanceolate, leafy. *Legumes* an inch and a quarter or an inch and a half long, comprefled, narrow, pale, hairy, with many feeds. We fhould have fuppofed the feeds of this species to have made an ingredient in the Curry powders of India; but we find nothing of this kind recorded, nor is the plant mentioned in the admirable work of Dr. Buchanan, cited under the laf species.

**Trigonella foitils**, in Natural History, the name of a fopples shell, of the cockle kind, but approaching to a tri-
angular figure, having a broad bottom to which it defcribes, almost in fright lines: on each fide from the head or caro, thefe are uufually found fmall, but there are fome met with of four or five inches round: they are found at dif-
terent depths, in flow quarries, bedded in the matter of the ftrata; and that often in the hardeft flone. In fome in-
stances, the fhefles are found remaining in their native flate; but moft frequently the fhef is perifhed and gone, and there is a floy or fpappar matter depofited in its place. Hill.

taeae, Linn.? *Moplistis affine*, Jull. Gen. Ch. Col. Perianth inferior, of one leaf, turbi-
nate; limb in five segments, the two upper ones most deeply divided, erect, spreading. Cor. papilionaceous, of five petals; standard erect, pitted at the bafe, flat, with a claw; wings longer and narrower, reflexed; keel of two conver-
verging petals. Nectary two scales at the bafe of the germen. Stam. Filaments ten, united into one common

sheath.
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fleath, separate above, some of them often abortive, and the common fleath finally splits into two; anthers oblong.

P. Germen superior, ovate, small; style short, ascending; stigma capitate, flat, with a membranous border. Pericarpi. Capsule oblong, acute, with three angles and three intermediate channels, of one cell and three valves, which are boat-shaped, double, the outer coat coriaceous, inner membranous, lined with wool. Seeds numerous, roundish, enveloped in long wool, and connected with a triple thread-shaped receptacle.


Wild. n. 1.—Leaves ovate, downy and hoary beneath.—Native of Guiana, growing chiefly by way sides, in cultivated grounds, or in the borders of groves and thickets, bearing flowers and fruit at various seasons. The stem is shrubby, with twining branches, supporting themselves upon neighbouring trees, round, downy and leafy. Leaves opposite, flaked, entire, three inches long and one and a half broad, veiny. Stipulas ovate, in pairs, deciduous. Clusters compound, terminal. Flowers aggregate, small, yellow, with a red keel. Fruit three inches, or more, in length, clothed with reddish down, splitting from the base.


Wild. n. 2.—Leaves elliptical, smooth and shining on both sides.—Found on the banks of a rivulet, near the base of the hill of Courou, in Guiana. The branches of this species are smooth, but twine round any thing in their way, like the preceding. Leaves only one and a half or two inches long, oval, entire, on shortish stalks. Clusters several at the ends of the branches, accompanied by some leaves. Flowers opposite, accompanied by small bracteas, white, with yellow anthers. Fruit about an inch long, greenish, rather rough to the touch. Seeds enveloped in soft white wool. Nothing is mentioned of any useful properties in either of these plants.

TRIGONIS, so called by Jacquin, because each of its petals forms an inverted isosceles triangle. See CUPANIA.

TRIGONOMETRICAL, Auxiliary. See Artificiali Trigonometria.

TRIGONOMETRY, from τριγονοϛ, triangle, and μετραω, measure, signifies literally the measure of triangles; but it is used here to denote that science which relates to the determination of the sides and angles of triangles, from certain parts which are given. When it is applied to the solution of plane triangles, it is called plane trigonometry; and its application to spherical triangles, is called spherical trigonometry.

Trigonometry, from its numerous and important uses, may be considered as one of the most interesting branches of the pure mathematics: practical and physical astronomy, navigation, surveying, geodesia, mechanics, is short nearly every branch of the pure and mixed mathematics, with the exception of geometry and arithmetic, are either wholly or in part connected with the principles of trigonometry; and we accordingly find that the improvements in this department have kept pace with, or rather perhaps have preceded, those which modern authors have introduced into all the other branches of the exact sciences: in fact, the trigonometry of the Greeks, and that of the moderns, which immediately followed the invention of logarithms, and, lastly, the analytical form given to it by Euler, Lagrange, &c. exhibit the same science under three very distinct characters, of which it will be proper to give a sketch as an introduction to the present article.

It is very uncertain at what time trigonometry first began to be cultivated as a science, no records having yet been discovered which enable us to trace it to a higher age than to that of Hipparchus, who flourished about 150 years before Christ, and who, as we are informed by Theon, wrote a work, in twelve books, on the chords of circular arcs, which, from the nature of the title, must have been a treatise on trigonometry: but the earliest work extant on this subject is the Spherics of Theodorus, in which the several propositions are demonstrated after the manner of Euclid; and the next in order to this, is a work by Menelaus, who flourished about the middle of the fifth century of the Christian era, and who is said to have written nine books on this subject; but of which, only three have been transmitted down to our times. The fix that are lost consisted principally of tables and the nature of their construction, which if we posseffed them would, in all probability, be rather matters of curiosity than of real utility. The earliest tables of trigonometry, of any importance, that we possefs of the ancients, are those given by Ptolemy in his Almagest, in which he adopts the sexagesimal division of the radius, and of the arc whose chord is equal to radius, and then eliminates all the other arcs by 60ths of that arc, and all the other chords by 60ths of that chord. From the time of Ptolemy, viz. from about the beginning of the second century, nothing of importance, except what we owe to Theon, was added to the science of trigonometry, till about the close of the eighth century after Christ, when the ancient method of computing by chords was changed for that of sines, an alteration first introduced by the Arabians, to whom we are also indebted for several axioms and theorems which are at present considered as the foundation of modern trigonometry; but they still continued the sexagesimal division; and in this state it remained till Purbach, about the middle of the 15th century, constructed a table of sines to the division of the radius into 600,000 equal parts, and computed them for every ten minutes of the quadrant; and afterwards Regiomontanus, the disciple and friend of Purbach, carried the computation to every minute, dividing the radius into 1,000,000. He also enriched this science with many new theorems and precepts, which, except for the use of logarithms, render the trigonometry of this author little inferior to that of our times.

Soon after the period here mentioned, several other mathematicians also contributed to the advancement of this science, either by some useful alterations in the form of the tables, or by other improvements; amongst whom we may mention, as the most distinguished, Werner, Copernicus, Rheinhold and Maurolycus: but the most complete work which had yet appeared, was published by Viete in 1579; and some other tracts on the same subject and due to the fame author were published by Schooten in 1646.

The first part of the work to which we have above alluded, was entitled "Canon Mathematicus seu ad Triangula, cum Appendicibus," in which there is given a table of sines, tangents, and secants for every minute of the quadrant to radius 100,000, with their differences; and towards the end of the quadrant, the tangents and secants are extended to eight or nine places of figures. They are also arranged after the manner of our modern tables, increasing from the left-hand side to 45°, and then returning backwards from the right-hand to 90°: so that each number and its complement stand upon the same line.

The second part, entitled "Univeritalium inspiciönum ad canonem mathematicum," contains, besides a regular account
count of the construction of the tables, a copious treatise on plane and spherical trigonometry, with their application to a variety of curious subjects in geometry and mensuration, and other branches of mathematics; and also a number of particulars relating to the quadrature of the circle, the duplication of the cube, and similar problems, which were all treated of in a manner worthy of the genius of their author. The tract published by Schooten likewise contains many curious theorems due to Viete, particularly relating to what the author calls angular sections; viz., to the multiples and submultiples of arcs; and general formulae for the chords and consequent for the sines of the sums and differences of arcs; and of such as are in arithmetical progression, which have since been so extensively and usefully applied, both in this science and in some of the higher branches of analysis. See Arithmetice of Sines.

The next writer on this subject, deserving of particular notice, was Rheticus, who formed the design of computing the trigonometrical canon for every ten seconds of the quadrant to fifteen places of figures; and although he did not execute the whole of this laborious enterprise, he nevertheless accomplished that part of it which related to the sines and cosines, all of which he calculated according to his original plan; besides those of every single second for the first and last degrees of the quadrant; but was deterred from publishing the table on account of the expense attending the impression. The work, however, was afterwards completed and published by his disciple and friend Otho, under the title of "Opus Palatinum de Triangulis" (folio 1596); but it was found to contain many errors, which were afterwards corrected by Piticus, and the whole published under the new title of "Thefaurus Mathematicus, &c.," folio 1613.

The Trigonometry of the same author, which was published in 1599, is also a very complete work, and was long considered, both with respect to its tables and its numerous practical applications, as the most commodious and useful treatise on the subject then extant.

We might here enumerate many other writers of this period, who disdained themselves either by their computation of new tables, or by their inventions of theorems; but the discovery of the use of logarithms, which happened about this time, produced a complete revolution in the method of treating this subject, and which therefore renders it unnecessary for us to enter into any minute explanation of the particular inventions and improvements of the authors to whom we have above alluded. Amongst the earliest promoters of trigonometry, after the invention of logarithms, was Napier himself, to whom we are not only indebted for that admirable discovery, but also for the new and exalted analogies which he introduced into trigonometry, and which still bear his name, as likewise for the well-known rules called the five circular parts. (See Parts.) Our limits, however, will not allow of tracing the history of this science, through all its successive improvements, from the time of Napier to the present day; we shall therefore content ourselves with referring to the article Logarithm for an account of many of the most useful and valuable tables of the logarithmic kind, and shall merely mention Briggs as an author who contributed much to the advancement of this science, both by the assistance that he afforded to the practical calculator in many intricate and abstruse computations, and by the numerous improvements of a higher kind, with which his works abound. Other writers afterwards, either by the construction of tables, or by the simplification of the rules and processes hitherto adopted, reduced the practice of trigonometrical operations to their simplest possible state, at least while it retained that geometrical form, which in the earlier stages of this science it naturally assumed. But about the middle or rather towards the close of the last century, trigonometry was again subjected to another complete revolution, by changing the geometrical form for the analytical one; and it is probable that to this change we are indebted for many of the most brilliant discoveries of that of late years have enriched the two great branches of astronomical science. The foundation of this method, however, may be traced to a much higher date than that to which we have above alluded; viz., to the time of Viete, whose theorems for the differences and sums, as also for the multiples and submultiples of the chords of arcs, which, although left without demonstration, and in the latter case probably formed by induction from the law of the terms and their co-efficients, have nev ertheless been the germ of most of the numerous and elegant formulae which have since enlarged and enriched this branch of the mathematics.

The exponential formulae also for the sines and cosines of arcs, first given by De Moivre, greatly contributed to the progress of the analytical branch of this subject, by abbreviating its operations, and shortening the labour of involution. See Arithmetice of Sines.

Having given this brief sketch of the history of trigonometry, it now remains for us to explain and illustrate its principles, and the various methods of applying it and of performing the requisite computations. With this view we shall commence with the definitions of all the terms which most frequently occur in this doctrine, in order to save the explanations which it would otherwise become necessary to make to the different articles in the body of the work.

In plane trigonometry, the circle is supposed to be divided into 360 equal parts, called degrees; every degree into 60 equal parts, called minutes; and every minute into 60 equal parts, called seconds; and so on into thirds, fourths, &c.; and the measure or quantity of an angle is estimated by the number of degrees, minutes, and seconds, contained in the arc by which it is bounded; the degrees being marked or denoted by a small °, the minutes by one dahl, as ', the seconds by two dahls, &c.; thus, 70 degrees 16 minutes 17 seconds, is written 70° 16' 17".

It may be observed, however, that the division of the circle is perfectly arbitrary, and that any other number might have been employed instead of 360; and the subdivisions might also have proceeded upon any other scale as well as the sexagesimal: and accordingly, the modern French mathematicians have adopted a different division, viz., they suppose the entire circle to be divided into 400 degrees, or each quadrant into 100 degrees; the next subdivision is the 10th of a degree, the next 100th, and so on; and hence the measure of an angle is expressed by them in the same manner as any other integral and decimal quantity, which notation is undoubtedly far superior to that in common use.

The complement of an angle or angle, is what it wants of 90°, or of a quadrant; and the supplement of an angle, is what it wants of 180°, or of a semicircle; thus, if an angle measures 50°, its complement is 40°, and its supplement 130°.

As to the several lines made use of in this science, they will be readily understood by a reference to Plate II. Trigonometry, fig. 14. aided by the following definitions; viz.

The sine or right sine of an arc, is a line drawn from one extremity of an arc perpendicular to the diameter which passes through the other extremity: thus, B F is the sine of the sine A B, or of the supplemental arc B D E.

The curved sine of an arc, is that part of the diameter which is intercepted between the arc and its sine: thus, A F is the curved sine of the arc A B, and D F the curved sine of the arc E D B.
TRIGONOMETRY.

The tangent of an arc, is a line touching the circle in one extremity of that arc, and continued thence to meet a line drawn from the centre through the other extremity of it, which last line is called the secant of the fame arc: thus, A H is the tangent, and C H the secant of the arc A B; also E I is the tangent, and C I the secant of the supplementar arc B D E; and this latter tangent and secant are equal to the former, but are accounted negative, as being drawn in an opposite or contrary direction to the former.

The cofine, cotangent, and cofecant, of an arc, are the finite, tangent, and secant of the complement of that arc; the letters co being only a contraction of the word complement. Thus, the arcs A B, B D, being the complement of each other, the finite, tangent, and secant of the one of these, is respectively the cofine, cotangent, and cofecant of the other: thus,

\[ B \, F, \text{ the fin. of } A \, B, \text{ is the cof. of } B \, D. \]
\[ B \, K, \text{ the fin. of } B \, D, \text{ is the cof. of } A \, B. \]
\[ A \, H, \text{ the tan. of } A \, B, \text{ is the cotan. of } B \, D. \]
\[ D \, L, \text{ the tan. of } B \, D, \text{ is the cotan. of } A \, B. \]
\[ C \, H, \text{ the fec. of } A \, B, \text{ is the cofec. of } B \, D. \]
\[ C \, L, \text{ the sec. of } B \, D, \text{ is the cofec. of } A \, B. \]
\[ F \, A, \text{ the verf. of } A \, B, \text{ is the coverf. of } B \, D. \]
\[ D \, K, \text{ the verf. of } B \, D, \text{ is the coverf. of } A \, B. \]

The above are the principal definitions relating to plane trigonometry, as far as regards the solution of plane triangles, which is that part of the subject to which we must more particularly confine our remarks in this article: what concerns the mutations or changes in the quantities above defined in passing successively round the circumference, and their particular values at certain points, have been already explained under the article Arithmetic of Sines, to which the reader is referred. In every triangle there are six parts; viz. three sides and three angles, any three of which being given (except the three angles), the other three may be found; and that either by geometrical construction, arithmetical or logarithmic computation, or by instrumental operation: that is, either by constructing the figure with the compases and a scale of chords, or other instrument for measuring angles; or by means of tables of natural or logarithmic sines, tangents, &c. in which the computation depends upon the proportionality of the sides of similar triangles; and lastly, by means of a Gunter or other scale constructed for this particular purpose, by which the results are obtained by the proper application of a pair of compases to certain lines on the scale: in the present article, however, we shall only attempt an illustration of the second method.

There are only three distinct cases in trigonometry; viz.

1. When a side and its opposite angle are two of the given parts.
2. When two sides and the included angle are given.
3. When the three sides are given.

Cafe 1.—When a side and its opposite angle are two of the given parts.

As any one side:
Is to any other side: So is the sine of the angle opposite to the former:
To the sine of the angle opposite to the latter.

This analogy supposes two sides and one angle to be given: if two angles and one side be given, the order of the terms becomes,

As the sine of any angle:
Is to the sine of any other angle: So is the sine opposite to the former:
To the sine opposite to the latter.

Vol. XXXVI.

For let \( A B C \) (fig. 15.) represent any triangle; take \( A \, c, B \, c \), equal to each other, and let them represent the tabular radius; then \( c \, a, c \, b \), will also be the tabular sines of the angles \( A \) and \( B \). Now by similar triangles,

\[ A \, C : A \, c :: C \, D : c \, a \]
\[ B \, C : B \, c :: C \, D : c \, b. \]

Consequently, since \( A \, c = B \, c \), and the third terms being equal, we have

\[ A \, C : B \, C :: C \, D : c \, a \text{ or } A \, C : B \, C :: \text{fin. } B : \text{fin. } A; \]

which is the same as the theorem in words.

Hence in the triangle \( A B C \) (fig. 16.), let \( A \, B, B \, C \), and the angle \( A \) be given; then it will be

\[ B \, C : B \, A :: \text{fin. } A : \text{fin. } C, \]

or \( \text{fin. } C = \frac{B \, A \times \text{fin. } A}{B \, C}. \)

Again, if the angles \( A \) and \( B \) were given, and the side \( B \, C \); then,

\[ \text{fin. } A : \text{fin. } B :: B \, C : A \, C, \]

or \( A \, C = \frac{\text{fin. } B \times B \, C}{\text{fin. } A}. \)

It should be observed here, that the angle found by the first of these analogies is ambiguous, or uncertain, viz. whether it be acute or obtuse, unless its magnitude be such as to prevent the ambiguity; for when this is not the case, there will be two different triangles, which have the same three parts, but the other three different in each; and there is nothing in the abstract solution to determine which of the two is the required one: but in any practical case, there will be always found some circumstance or other to decide the question. This will be understood from fig. 17, where there are two triangles \( A \, B \, C, A \, B \, C' \); in each of which the sides \( A \, B, B \, C, \) or \( B \, C', \) and the angle \( A, \) are the same; and, therefore, the angle \( C, \) determined by the analogy, may be either \( B \, C \, A \) or \( B \, C' \, A, \) which are the supplementations of each other, and which two angles, we have shown in the definitions, have always the same sine. The tabular sine, however, is always that belonging to the acute angle; and, therefore, when the obtuse angle is required, the acute angle must be subtracted from 180o, which will be the obtuse angle. But if the angle be a right angle, or greater than a right angle, the acute angle found by the table must be the required angle; and, therefore, in this case, there is no ambiguity.

Let us propose, as an example, a triangle \( A \, B \, C, \) in which the side \( A \, B = 345, B \, C = 232, \) and angle \( A = 37^{\circ} 20'. \)

First, to find the angle at \( C. \)

\[ \begin{align*}
\text{As the side } B \, C &= 232 \quad \text{2.5654886} \\
\text{Is to side } A \, B &= 345 \quad \text{2.5378191} \\
\text{So is sine } < A &= 37^{\circ} 20' \quad 9.7827958 \\
\text{To sine } < C &= 64^{\circ} 24' \quad 9.9551269
\end{align*} \]

That is, by adding together the logarithms of the second and third terms, and subtracting the first, we obtain the logarithmic value of the sine of \( < C, \) which is found in the table to answer to the angle \( 64^{\circ} 24'. \) But we have found that

Vol. XXXVI.
an angle and its supplement have the same sine; therefore, the
side we have found may either answer to the angle $64° 24'$,
or to its supplement $115° 36'$. This question, therefore,
involved that ambiguity to which we have above alluded;
and we must proceed to find the third side under each of the
values of the angle $C$, and the two corresponding values of
the angle $B$.

Since the sum of the three angles of a triangle $= 180°$,
\[
\begin{align*}
\angle A &= 37° 20' \\
\angle C &= 64° 24'
\end{align*}
\]
\[
180° - (101 44') = 78° 16' = \angle B.
\]
Again,
\[
\begin{align*}
\angle A &= 37° 20' \\
\angle C &= 115° 36'
\end{align*}
\]
\[
180° - (152 56') = 27° 4' = \angle B.
\]
Hence, from the first values of the angles $C$ and $B$, we
have,
\[
\begin{align*}
\text{As fin. } \angle A &= 37° 20' \\
\text{Is to fin. } \angle B &= 78° 16'.
\end{align*}
\]
\[
\text{So is } BC = 232, 2.3654880
\]
\[
\text{To } AC = 374.56, 2.5735213
\]
Again, assuming the second values of the angles $B$ and $C$, we
have,
\[
\begin{align*}
\text{As fin. } \angle A &= 37° 20' \\
\text{Is to fin. } \angle B &= 27° 4'.
\end{align*}
\]
\[
\text{So is } BC = 232, 2.3654880
\]
\[
\text{To } AC = 174.07, 2.2407293
\]
The side and angles sought are, therefore, $AC = 374.56$, or $174.07$; and the angle $B = 78° 16'$, or $27° 4'$; and
angle $C = 64° 24'$, or $115° 36'$; either of which results
equally answer all the conditions of the original data. But
it is obvious, that if the given angle $A$ had been a right
angle, or greater than a right angle, this ambiguity could
not have had place; because, in that case, the other two
angles are necessarily acute.

Case 2.—When two sides and their included angle are the
three given parts.

As the sum of the sides :
Is to the difference of the sides ::
So is the tangent of half the sum of the required angles :
To the tangent of their half difference.

Then to half the sum add half the difference for the
greater angle, and subtract it for the less. The three angles
of the triangle being thus known, the required side may be
found by Case 1.

Note.—The half sum of the angles is found by substracting
the given angle from $180°$, and taking half the remainder;
or, instead of the tangent of the half sum, the cotangent of
half the given angle may be used, being the same thing.

Let $ABC$ (fig. 18.) be any triangle; produce $AB$, making
$BE = BC$; also take $BD = BC$; join $DC$ and $CE$, and draw $DF$ perpendicular to $DC$. Now since
$DB$, $BC$, and $BE$, are all equal to each other, a femi-
circle described from the centre $B$, and with the radius $DB$,would pass through $D$, $C$, and $E$; consequently $DCE$ is
a right angle, or $CE$ is perpendicular to $DC$, and is there-
tore parallel to $DF$; and hence $DF$ and $EC$ are re-
spectively the tangents to the angles $DCE$, and $CDE$ to
the fame radius $DC$. But $CDE$ or $CDB$ is half the sum
of the angles $BAC$ and $BCA$; for since $DB = BC$, the
angle $BDC$ is evidently $= \frac{1}{2}$ the external angle
$CBE$, which is equal to the sum of the angles at $A$ and $C$;
therefore, $CDB = \frac{1}{2}$ to half sum, and $DFC = \frac{1}{2}$
the difference of the fame angles $ABC$ and $CAB$; for
$ABC = BCD + DCA$, and consequently $BAC =
DCE$, or $BDC - DCA$; therefore $DCE = \frac{1}{2}$
their difference. Whence $CE$ is tangent of half the sum,
and $DF$ the tangent of half the difference of the angles $A$
and $C$; and it is evident from the construction that $AE$
is the sum of the sides, and $AD$ is the difference of the
fame; consequently, since $DF$ and $CE$ are parallel, we have
$AE = AD :: CE : DF$;
that is,
As the sum of the sides $AB + BC$ :
Is to the difference of the sides $AB - BC$ ::
So is the tangent of half the sum of the angles $A$ and $C$ :
To the tangent of their half difference.

Let us take as an example a triangle (fig. 19.), in which
the following dimensions are given, viz.
$AB = 75$, $AC = 58$, $A = 108° 24'$;
then will $AB = 75$ $A = 75$ $A + B + C = 180°$ c
\[
\begin{align*}
AC &= 58
\end{align*}
\]
\[
\begin{align*}
A &= 108 24
\end{align*}
\]
\[
\begin{align*}
\text{Sum} &= 133,
\end{align*}
\]
\[
\begin{align*}
\text{differ.} &= 17
\end{align*}
\]
\[
\begin{align*}
BC &= 71 36
\end{align*}
\]
\[
\begin{align*}
\frac{1}{2}(B + C) &= 35 48
\end{align*}
\]
\[
\begin{align*}
\log. \ of \ AB + AC &= 2.1238516
\end{align*}
\]
\[
\begin{align*}
\log. \ of \ AB - AC &= 1.2304489
\end{align*}
\]
\[
\begin{align*}
\log. \ of \ tan. \ \frac{1}{2}(B + C) &= 0.9854089
\end{align*}
\]
\[
\begin{align*}
\log. \ of \ tan. \ \frac{1}{2}(C - B) &= 11.0885818
\end{align*}
\]
\[
\begin{align*}
\log. \ of \ tan. \ \frac{1}{2}(C - B) &= 8.6646667
\end{align*}
\]
\[
\text{The nearest corresponding number to which is } 5° 16'.
\]
\[
\frac{1}{2}(B + C) &= 35 48', 
\frac{1}{2}(B + C) &= 35 48'
\]
\[
\frac{1}{2}(C - B) &= 5° 16', 
\frac{1}{2}(C - B) &= 5° 16'
\]
\]
\[
\begin{align*}
C &= 41° 4' \\
B &= 30° 32'
\end{align*}
\]
If the other side $CB$ were required, having found the
angles, it may be exactly determined by the first case.

Case 3.—When the three sides of a triangle are given, to
find the three angles.

Assume any side of the triangle as a base (fig. 20.), and let fall
a perpendicular upon it from the opposite angle; then say,
As the base :
Is to the sum of the other two sides ::
So is the difference of the fame sides :
To the difference of the segments of the base.

To the base or sum of the segments add the half difference
for the greater segment, and subtract it for the less.

The segments being thus found, the angles may be de-
termined by the first case. The demonstration is here very
obvious; for, by the 47th proposition of the first book of
Euclid,
\[
A D^2 + DC^2 = AC^2
\]
\[
B D^2 + DC^2 = BC^2
\]
therefore,
TRIGONOMETRY.

Therefore, \( A \, D^2 - B \, D^2 = A \, C^2 - B \, C^2 \);

consequently,
\[ A \, D + B \, D : A \, C + B \, C :: A \, C - B \, C : A \, D - B \, D; \]

which is the same as the theorem in words.

As an example, let a triangle be proposed (fig. 21.), in which the three sides are as follow, viz.

\[
\begin{align*}
A \, B &= 36, A \, C = 45, B \, C = 40 \\
A \, C &= 45, A \, B = 36, A \, B &= 36 \\
A \, C + A \, B &= 81, F \, C = 9 \\
\log \text{ of } B \, C &= 1.6020600 \\
\log \text{ of } A \, C + A \, B &= 1.9084850 \\
\log \text{ of } F \, C &= 0.9542425 \\
\text{Sum of log.} &= 2.8627275 \\
\log \text{ of } C \, G &= 1.2666757 \\
\log \text{ of } G \, E &= 1.5563025 \\
\log \text{ of whole side} &= 10.0000000 \\
\log \text{ of } E \, B &= 1.0370729 \\
\log \text{ of sin. of } E \, A \, B &= 9.4807254 \\
\log \text{ of } A \, C &= 1.6532125 \\
\log \text{ of whole side} &= 10.0000000 \\
\log \text{ of } C \, E &= 1.4604225 \\
\log \text{ of sin. of } E \, A \, C &= 9.8108097 \\
\end{align*}
\]

The third preceding cases include all the possible varieties that can arise in the solution of plane triangles; but, under certain relations of the data, more simple operations may frequently be employed. Some of these solutions we shall investigate analytically at the conclusion of this article, and it will therefore be sufficient to point out in this place a few particulars relative to the solution of right-angled plane triangles.

In any right-angled triangle, any of the unknown parts may be found by the following proportions.

As radius:
Is to either leg of the triangle:
So is the tangent of the adjacent angle:
To the opposite leg; and:
So is the secant of the same angle:
To the hypothenuse.

For \( A \, B \) (fig. 22.) being supposed the given leg, let \( A \, D \) represent the tabular radius, describe the arc \( E \, D \), and draw \( D \, F \) perpendicular to \( A \, D \); so shall \( D \, F \) represent the tabular tangent, and \( A \, F \) the tabular secant of the angle \( A \); and because of the parallels, as \( A \, D \) \( : \, A \, B :: D \, F : B \, C :: A \, F : A \, C \), which is the same as the theorem in words.

Whence
\[
\begin{align*}
B \, C &= A \, B \times D \, F \times \tan \, A \quad \text{rad.} \\
A \, C &= A \, B \times A \, F \times \sec \, A \quad \text{rad.} \\
\end{align*}
\]

When the hypothenuse is given, each of the legs will represent, or have the ratio of, the sines of their opposite angles, the hypothenuse itself being assumed for the radius.

In this case, therefore, it will be

As radius:
Is to the hypothenuse:
So is the sine of either acute angle:
To the opposite side.

That is
\[
\begin{align*}
A \, E : A \, C :: A \, G : B \, C; \\
\end{align*}
\]

or
\[
\begin{align*}
\text{rad. : } A \, C :: \sin \, A : A \, B \\
\text{rad. : } A \, C :: \sin \, B : A \, B \\
\end{align*}
\]

Note.—The radius is equal to the sine of 90°, or to the tangent of 45°.

The preceding theorems have been deduced from the geometrical properties of triangles and of their several parts; and they exhibit the simplest and most direct mode of solution that can be obtained generally for each case; but there are certain other forms of solution which are much more readily applied under particular relations of the data, which it will be proper now to consider, and in which we shall adopt the analytical mode of investigation instead of the geometrical one hitherto pursued.

Let \( A \, B \, C \) (Plate III, fig. 1.) be any plane triangle; \( C \) the vertical angle; \( C \, D \) a perpendicular let fall upon the base \( A \, B \); and let \( a, b, c \) denote the sides respectively that are opposite to the angles \( A, B, C \).

Then because \( A \, C = b, A \, D \) is the cosine of \( A \) to that radius; consequently, when radius is 1, \( A \, D = b \, \cos \, A \).

In like manner, \( B \, D = a \, \cos \, B \); therefore \( A \, D + B \, D = A \, B = a \, \cos \, B + b \, \cos \, A \).

If one of the angles, as \( A \), were obtuse, the result would still be the same; because, while on the one hand \( \cos \) \( A \) would be negative, \( A \, D \), lying on the contrary side of \( A \) to what it does in the figure referred to, it must be deducted from \( B \, D \) to leave \( A \, B \); and a negative quantity subtracted, is equivalent to a positive quantity added; and by letting fall perpendiculars from the angles \( A \) and \( B \) upon the opposite sides, or upon their continuations, precisely analogous results will be obtained; and hence we derive immediately the following fundamental equations.

\[
\begin{align*}
a &= \tan \, C + \cos \, B \quad \text{rad.} \\
b &= \cos \, C + \cos \, A \quad \text{rad.} \\
c &= \cos \, B + \cos \, A \quad \text{rad.} \\
\end{align*}
\]

Again, it is obvious, that in the same manner as we found \( A \, D = b \, \cos \, A \), and \( B \, D = a \, \cos \, B \), we might also obtain \( D \, C = a \, \sin \, A \) and \( D \, C = b \, \sin \, A \); therefore \( a \, \sin \, A \).

\( B = b \, \sin \, A \); whence also \( b = \sin \, A \).

In like manner we have \( a = \tan \, C \); and \( b = \tan \, B \).

Or changing the denominators, the relations of all the six quantities may be thus expressed:

\[
\begin{align*}
f \, \sin \, A &= f \, \sin \, B \quad \text{rad.} \\
f \, \sin \, A &= f \, \sin \, C \quad \text{rad.} \\
f \, \sin \, B &= f \, \sin \, C \quad \text{rad.} \\
\end{align*}
\]

These
TRIGONOMETRY.

Thefe formulae fhew immediately the truth of our firft theorem, viz. "the fides of plane triangles have the fame ratio as the fides of their oppofite angles."

Again, fince \( a : b : \) fin. \( A : \) sin. \( B, \) we have \( a + b : a - b :: \) sin. \( A + \) fin. \( B : \) sin. \( A - \) sin. \( B; \) that is,

\[
\begin{align*}
a + b &= \text{fin. } A + \text{fin. } B \\
a - b &= \text{fin. } A - \text{fin. } B.
\end{align*}
\]

But

\[
\frac{\text{fin. } A + \text{fin. } B}{\text{fin. } A - \text{fin. } B} = \frac{\text{tan. } \frac{1}{2} (A + B)}{\text{tan. } \frac{1}{2} (A - B)}.
\]

See Arithmetic of Sines; consequently

\[
\begin{align*}
a + b &= \tan. \frac{1}{2} (A + B) \\
a - b &= \tan. \frac{1}{2} (A - B)
\end{align*}
\]

Or \( a + b = \tan. \frac{1}{2} (A + B) : \tan. \frac{1}{2} (A - B); \)

that is, "the fum of the fides is to the difference of the fides, as the tangent of half the fum of the oppofite angles is to the tangent of half the difference," which is our fecond theorem; and other forms of folution are readily obtained from the two fundamental equations (I.) and (II.) viz.

\[
\begin{align*}
a &= b \text{ cof. } C + c \text{ cof. } B \\
b &= a \text{ cof. } C + c \text{ cof. } A \\
c &= c \text{ cof. } B + b \text{ cof. } A
\end{align*}
\]

For multiplying the firt of these equations by \( a, \) the fecond by \( b, \) and the third by \( c, \) and each of the equations thus obtained being taken from the fum of the other two, there will arife

\[
\begin{align*}
b^2 + c^2 - a^2 &= 2bc \text{ cof. } A \\
a^2 + c^2 - b^2 &= 2ac \text{ cof. } B \\
a^2 + b^2 - c^2 &= 2ab \text{ cof. } C
\end{align*}
\]

(III.)

Hence, when two fides and the contained angle are given, we have

\[
\begin{align*}
a &= \sqrt{\left\{ \frac{1}{2} (a + b + c) - \frac{1}{2} (a + b + c) - a \right\}} \\
b &= \sqrt{\left\{ \frac{1}{2} (a + b + c) - b \right\}} \\
c &= \sqrt{\left\{ \frac{1}{2} (a + b + c) - c \right\}}
\end{align*}
\]

(IV.)

And when the three fides are given,

\[
\begin{align*}
\text{cof. } A &= \frac{(b + c - a) (b + c - a)}{2bc} \\
\text{cof. } B &= \frac{(a + c - b) (a + c - b)}{2ac} \\
\text{cof. } C &= \frac{(a + b - c) (a + b - c)}{2ab}
\end{align*}
\]

(V.)

These formulae are very convenient for computation, the former when the cofine of the given angle has any real fractional value, and the latter, when the three fides are completely integral, and small numbers: in other fcases, they will be found more convenient under the following form, viz.

\[
\begin{align*}
\text{cof. } A &= \frac{(b + c - a) (b + c - a)}{2bc} \\
\text{cof. } B &= \frac{(a + c - b) (a + c - b)}{2ac} \\
\text{cof. } C &= \frac{(a + b - c) (a + b - c)}{2ab}
\end{align*}
\]

(VI.)

Or we may substitute for \( \text{cof. } A \) its equal \( 2 \text{ cof. } \frac{1}{2} A - 1, \)

(see Sin.); and we have,

\[
\begin{align*}
\text{cof. } A &= \sqrt{\left\{ \frac{1}{2} (a + b + c) - b \right\}} \\
\text{cof. } B &= \sqrt{\left\{ \frac{1}{2} (a + b + c) - a \right\}} \\
\text{cof. } C &= \sqrt{\left\{ \frac{1}{2} (a + b + c) - c \right\}}
\end{align*}
\]

(VII.)

which is purely logarithmic: the \( \text{cof. } \frac{1}{2} B, \) and \( \text{cof. } \frac{1}{2} C, \) being precisely analogous to the above, are omitted.

And in a similar manner, we find

\[
\text{fin. } \frac{1}{2} A = \sqrt{\left\{ \frac{1}{2} (a + b + c) - c \right\}} \\
\text{fin. } \frac{1}{2} B = \sqrt{\left\{ \frac{1}{2} (a + b + c) - a \right\}} \\
\text{fin. } \frac{1}{2} C = \sqrt{\left\{ \frac{1}{2} (a + b + c) - b \right\}}
\]

(VIII.)

And again, by division,

\[
\frac{1}{2} (a + b + c) - a
\]

(IX.)

Of thefe several rules for the determination of the fides and angles of plane triangles, we have before observed, that the formulae (IV.) and (V.) are fett adapted to small integral values of the fides; and to real fractional values of the cofine, in other fcases, one or other of the three latter will fett apply. When the angle fought is very small, it is ufually better to employ \( \text{N}^5 \) (VIII.) than \( \text{N}^5 \) (VII.). The method indicated in \( \text{N}^5 \) (IX.) is commodious, and very correct, except when \( A \) is either very small or near \( 180^\circ. \)

In fome fcases, where great accuracy is required, the operator may wifh to obviate the uncertainties that would arife from the ufe of fome of thefe formulae; for which purpofe Dr. Mafkeyne has given, in the Introduction to Taylor's Logarithms, the following rules in reference to the fides and tangents of very small arcs.

1. To find the Sine.—To the log. of the arc reduced into fconds, with the decimal annexed, add the conftant quantity \( 4.6855749, \) and from the fum subtract one-third of the arithmetical complement of the log. cofine, and the remainder will be the log. fine of the given arc.

2. To find the Arc from the Sine.—To the given log. fine of a small arc, add \( 5.3144251, \) and one-third of the arithmetical complement of log. cofine; subtract 10 from the index of the fum, the remainder will be the logarithm of the number of fconds and decimals in the given arc.

3. To find the Tangent.—To the log. arc and the conftant quantity \( 4.6855749, \) add two-thirds of the arithmetical complement of the log. cofine, and the fum is the log. tangent of the given arc.

4. To find the Arc from the Tangent.—To the log. tangent add \( 5.3144251, \) and from the fum subtract two-thirds of the arithmetical complement of log. cofine; take 10 from the index, and there will remain the logarithm of the number of fconds and decimals in the given arc.
TRIGONOMETRY.

Trigonometry, Spherical, relates to the resolution and calculation of the sides and angles of spherical triangles, which are formed by the intersection of three great circles of the sphere, and which, like plane triangles, confit of six parts, viz. three sides and three angles. See Spherical Triangle.

In plane trigonometry, any three of the six parts of a triangle being given, except the three angles, the other parts may be found; but in spherical trigonometry this exception has not place, for any three of the six parts being given, the rest may thence be determined, the sides being measured or estimated by degrees, minutes, &c. the same as the angles.

Spherical trigonometry is divided into right-angled and oblique-angled, or the resolution of right and oblique-angled spherical triangles. When a spherical triangle has a right angle, it is called a right-angled spherical triangle; and when one of its sides is a quadrant, or 90°, it is called a quadrantal triangle.

The solution of all the cases of spherical trigonometry, although much more numerous than those in plane trigonometry, depends upon only three fundamental equations.

Theorem 1.—In any spherical triangle, the sides of the sides have the same ratio as the sines of their opposite angles.

Let O (fig. 2.) be the centre of the sphere, and having joined OA, OC, OB, draw AD perpendicular to the plane OBC; also make DE perpendicular to OB, and DF to OC; and join AE, AF.

Then, because AD is perpendicular to the plane OBC, each of the planes ADE, AFD, which pass through AD, will also be perpendicular to that plane; and since ED is perpendicular to OB, and the plane ADE to the plane OBC, the line AE, which lies in the plane ADE, and is drawn from the fame point E, is also perpendicular to OB. Again, in like manner, because FD is perpendicular to OC, and the plane AFD to the plane OBC, the line FA, which lies in the plane AFD, and is drawn from the fame point F, is perpendicular to OC; and, therefore, the angles AED and AFD, which measure the inclination of the planes AOB, AOC, will measure the angles CBA, BCA, of the spherical triangle ABC. Also AF, being perpendicular to OC, is the sine of the angle AOF, or of the arc AC; and AE, which is perpendicular to OB, is the sine of the angle AOB, or of the arc AB. But ADE, AFD, being right-angled plane triangles, right-angled at D, we shall have AD = AE sin. AED, and AD = AF sin. AFD. Whence, by equality, AE sin. AED = AF sin. AFD; consequently

AE : sin. AFD :: AF : sin. AED, or


that is, the sines of the sides have the same ratio as the sines of the opposite angles.

Hence, if A, B, C, be supposed to denote the three angles of any spherical triangle, and a, b, c, the corresponding opposite sides, we may from the above deduce the following fundamental equation, viz.

\[
\sin A \sin B \sin C = \sin a \sin b \sin c \quad (I).
\]

Theorem 2.—In any spherical triangle,

As the rectangle of the sides of any two sides : is to the radius ::

So is the rectangle of radius and the cofine of the other side, minus the rectangle of the cofines of the same two sides :

To the cofine of the angle included by those sides.

For, having joined OA, OB, OC, (fig. 3.) draw FD in the plane OBC, and DE in the plane OAB, each perpendicular to their common section OB, and join EF. Then, because the angle EDF is the measure of the inclination of the planes OBC, OAB, it is also the measure of the spherical angle ABC or B. And because

\[
\text{cuf. EDF} = \frac{DE^2 + DF^2 - EF^2}{2 DE \times DF},
\]

\[
\text{cuf. EOF} = \frac{OE^2 + OF^2 - EF^2}{2 OE \times OF},
\]

\[
EF^2 = OE^2 + OF^2 - 2OE \times OF \times \text{cuf. EOF},
\]

See Form (V.) Plane Trigonometry.

And by substituting this in the first equation, \( \text{cuf. EDF} = \frac{DE^2 + DF^2 - EF^2}{2 DE \times DF} \),

\[
\text{cuf. B} = \frac{OE \times OF \times \text{cuf. EOF} - OA^2}{DE \times DF} \quad (II.)
\]

Whence, since \( \frac{OE}{DE} = \frac{1}{\sin DOE} \), and \( \frac{OF}{DF} = \frac{1}{\sin DOF} \), &c. if these values be substituted in the former equation, we shall have

\[
\text{cuf. B} = \frac{\text{cuf. AC} - \text{cuf. AB} \times \text{cuf. BC}}{\sin AB \times \sin BC},
\]

which necessarily involves the conditions given in the enunciation of the theorem.

Here again, assuming A, B, C, to denote the angles, and a, b, c, the corresponding opposite sides, we deduce the following set of equations, viz.

\[
\begin{align*}
\text{cuf. a} & = \text{cuf. b} \times \text{cuf. c} + \text{fin. b} \times \text{fin. c} \times \text{cuf. A} \quad (I. I.) \\
\text{cuf. b} & = \text{cuf. a} \times \text{cuf. c} + \text{fin. a} \times \text{fin. c} \times \text{cuf. B} \\
\text{cuf. c} & = \text{cuf. a} \times \text{cuf. b} + \text{fin. a} \times \text{fin. b} \times \text{cuf. C} \quad (I. I. I.)
\end{align*}
\]

These equations will apply equally to the supplemental triangle; thus putting for the sides a, b, c, \( 180^\circ - a', 180^\circ - b', 180^\circ - c' \); and for the angles A, B, C, \( 180^\circ - a', 180^\circ - b', 180^\circ - c' \), we shall have

\[
- \text{cuf. A'} = \text{cuf. B'} \times \text{cuf. C'} - \text{fin. B'} \times \text{fin. C'} \times \text{cuf. a'}.
\]

And here, again, we have three symmetrical equations applying to any spherical triangles, viz.

\[
\begin{align*}
\text{cuf. a} & = \text{cuf. b} \times \text{fin. c} - \text{cuf. b} \times \text{fin. c} \\
\text{cuf. b} & = \text{cuf. c} \times \text{fin. a} - \text{cuf. c} \times \text{fin. a} \\
\text{cuf. c} & = \text{cuf. a} \times \text{fin. b} - \text{cuf. a} \times \text{fin. b}
\end{align*}
\]

Another important relation may also hence be readily deduced; for, substituting for the cuf. b in the third of the equations N°. (II.) its value in the second; substituting also for cuf. a', its value \( - \text{fin. a} \), and then striking out the common factor fin. a, we shall have

\[
\text{cuf. c} \times \text{fin. a} = \text{fin. c} \times \text{cuf. a} \times \text{cuf. b} + \text{fin. b} \times \text{cuf. c}.
\]

But equation N°. (I.) gives \( \text{fin. b} = \frac{\text{fin. b}}{\text{fin. c}} \); and hence,
hence, by substitution,

\[
\frac{\text{cof. } \alpha \times \text{sin. } \epsilon}{\text{sin. } \epsilon} = \frac{\text{sin. } \beta \times \text{cof. } C \times \text{sin. } \epsilon}{\text{sin. } C}
\]

Dividing by \(\text{sin. } \epsilon\), we have

\[
\frac{\text{cof. } \alpha}{\text{sin. } \epsilon} = \frac{\text{cof. } \alpha \times \text{cof. } B}{\text{sin. } \epsilon}.
\]

Thus, again, we get three symmetrical equations:

\[
\begin{align*}
\text{cot. } \beta & = \text{cot. } \beta \times \text{cof. } C \times \text{sin. } \epsilon, \\
\text{cot. } \epsilon & = \text{cot. } \epsilon \times \text{cof. } A \times \text{sin. } B, \\
\text{cot. } \delta & = \text{cot. } \delta \times \text{cof. } A \times \text{sin. } B.
\end{align*}
\]

The classes of equations Nos. (I.) (II.) (III.) and (IV.) comprehend the whole of spherical trigonometry; or, in fact, \(N^0 (I.)\), from which all the others can be derived, may be regarded as comprehending the whole. They require, however, some modifications to adapt them to logarithmic computations, which we shall now endeavour to illustrate.

1. Solution of Right-Angled Spherical Triangles.—Let us suppose the angle \(A\) to be the right angle, then \(\text{sin. } A = 1\).

\[
\begin{align*}
\text{sin. } A & = \frac{\text{sin. } B}{\text{cof. } B}, \\
\text{sin. } B & = \frac{\text{sin. } C}{\text{cof. } C}.
\end{align*}
\]

For the same reason, Equation 1. \(N^0 (I.)\) gives:

\[
\begin{align*}
\text{sin. } A & = \frac{\text{sin. } B}{\text{cof. } B}, \\
\text{sin. } B & = \frac{\text{sin. } C}{\text{cof. } C}.
\end{align*}
\]

And upon the same hypothesis, \(\text{cot. } A\) becomes \(\epsilon\); so that Equation 1. \(N^0 (IV.)\) becomes:

\[
\begin{align*}
\text{cot. } A & = \frac{\text{cot. } B}{\text{cot. } B}, \\
\text{cot. } A & = \frac{\text{cot. } B}{\text{cot. } B}.
\end{align*}
\]

The equations 2. and 3. of \(N^0 (I.)\) give also upon the same hypothesis, that is, angle \(A = 90^\circ\):

\[
\begin{align*}
\text{cot. } B & = \frac{\text{cot. } B}{\text{cot. } B} \times \text{cof. } C, \\
\text{cot. } C & = \frac{\text{cot. } C}{\text{cot. } C} \times \text{cof. } B.
\end{align*}
\]

And, lastly, from \(N^0 (IV.)\):

\[
\begin{align*}
\text{cot. } B & = \frac{\text{cot. } B}{\text{cot. } B} \times \text{sin. } \beta, \\
\text{cot. } C & = \frac{\text{cot. } C}{\text{cot. } C} \times \text{sin. } \epsilon.
\end{align*}
\]

From these equations, by a few obvious transformations, the six usual cases of spherical right-angled triangles may be solved as follows.

Cafe 1.—Given the hypotenuse \(A\), and an angle \(B\), to find the other parts.

Here,

\[
\begin{align*}
\text{sin. } B & = \text{sin. } A \times \text{sin. } B, \\
\text{cot. } B & = \text{cot. } A \times \text{cof. } B.
\end{align*}
\]

It may be proper to observe, that the rules of the signs, given under the article Arithmetic of Sines, will serve in all these cases to determine the kind or affection of the unknown parts.

In working by logarithms it must be observed, that when the resulting logarithm is the logarithm of a quotient, \(10\) must be added to the index; and when it is the logarithm of a product, \(10\) must be subtracted from the index.
TRIGONOMETRY.

11. Resolution of oblique-angled spherical Triangles.—This may be effected by means of four general cases, comprehend- ing two or more problems.

Case 1.—Given three of these four things, viz. two sides and their opposite angles and C, to find the fourth.

This case comprehends two problems, in one of which the unknown quantity is an angle, in the other a side; which are both resolved by means of equation N° (I) from which we have

\[
\sin C = \frac{\sin c \sin B}{\sin b}; \quad \sin e = \frac{\sin C \sin b}{\sin B}.
\]

Case 2.—Of the four following things; viz. a, b, c, and an angle, any three being given, to find the fourth. This case comprehends three problems.

1. When the three sides are given, to find an angle.

Here, from equation N° (II.) we have

\[
\begin{align*}
\text{c}of. A &= \frac{\text{c}of. a - \text{c}of. b \text{c}of. e}{\sin b \sin e} \\
\text{c}of. B &= \frac{\text{c}of. b - \text{c}of. a \text{c}of. e}{\sin a \sin e} \\
\text{c}of. C &= \frac{\text{c}of. c - \text{c}of. a \text{c}of. b}{\sin a \sin b}
\end{align*}
\]

In this form, however, the equations are not adapted to logarithmic computation. We must therefore refer to the formulae given under the article Sine, where we have

\[
1 + \text{c}of. A = 2 \text{c}of. \frac{1}{2} A, \quad \text{and} \quad 1 - \text{c}of. A = 2 \sin \frac{1}{2} A.
\]

Hence,

\[
2 \text{c}of. \frac{1}{2} A = \frac{\sin b \sin c - \text{c}of. a - \text{c}of. b \text{c}of. e}{\sin b \sin e} = \frac{\text{c}of. a - \text{c}of. (b + c)}{\sin b \sin e}.
\]

Hence, also, \(2 \sin \frac{1}{2} A = \frac{\cos (b - c) - \cos a}{\sin b \sin e}\)

The latter of these, divided by the former, gives

\[
\tan^2 \frac{1}{2} A = \frac{\cos (b - c) - \cos a}{\cos a - \cos (b + c)};
\]

which is equivalent to

\[
\tan^2 \frac{1}{2} A = \frac{2 \sin (a + b - c) \sin (a + e - b)}{2 \sin (a + b + c) \sin (b + e - a)}.
\]

See Sines.

Hence we have, for the tangents of the half angles of these three symmetrical equations; viz.

\[
\tan \frac{1}{2} A = \sqrt{\frac{\sin \frac{1}{2} (a + b - c) \sin \frac{1}{2} (a + e - b)}{\sin b \sin e}}.
\]

\[
\tan \frac{1}{2} B = \sqrt{\frac{\sin \frac{1}{2} (a + b - c) \sin \frac{1}{2} (b + e - c)}{\sin a \sin e}}.
\]

\[
\tan \frac{1}{2} C = \sqrt{\frac{\sin \frac{1}{2} (a + e - b) \sin \frac{1}{2} (b + e - a)}{\sin a \sin b}}.
\]

The expressions for the sines of the half angles might be obtained with equal facility. As they are symmetrical, we shall put down but one; viz.

\[
\sin \frac{1}{2} A = \sqrt{\frac{\sin \frac{1}{2} (a + b - c) \sin \frac{1}{2} (a + e - b)}{\sin b \sin e}}.
\]

And expressions for the cosines and cotangents of the half angles may be readily found from the above by the forms \(\cos \frac{1}{2} = \frac{\cos a - \cos b \cos e}{\sin a \sin b}\).

When two sides, as b and e, become equal, the expression for \(\sin \frac{1}{2} A\), becomes \(\sin \frac{1}{2} A = \frac{\sin \frac{1}{2} a}{\sin b}\).

If \(a = b = c = 90^\circ\), then \(\sin \frac{1}{2} A = \frac{\sqrt{2}}{2} = \frac{1}{2} \sqrt{2} = 45^\circ\); and \(A = B = C = 90^\circ\).

Leaving other corollaries to be deduced by the reader, let us proceed to the next problem in this case.

2. To find the side opposite to the given angle C; that is, given two sides and the included angle, to find the third side. Find from the data a dependent angle \(\alpha\), such, that

\[
\tan \alpha = \text{cot} C \tan b.
\]

Substitute for \(\text{cot} C\) in the third equation N° (II.) its value in this, and it will become

\[
\text{cot} c = \text{cot} a \text{ cot} b + \sin a \text{ cot} b \tan \alpha
\]

\[
= \text{cot} b \left(\frac{\text{cot} a \text{ cot} \alpha + \sin a \tan \alpha}{\text{cot} c}\right)
\]

or if \(\alpha = 0\) and \(\text{cot} c = \text{cot} \alpha = \frac{\text{cot} b}{\text{cot} C}\).

Hence \(a\) is known by adding \(\alpha\).

Case 3.—Of the four following parts; viz. two sides, and two angles, one opposite, the other adjacent; three being given, to find a fourth.

This case presents four problems.

1. Given \(a, \alpha, b,\) to find \(C\).

2. Determine an are \(\theta\) by this condition.

\[
\text{cot} c = \text{cot} \theta \text{ cot} b, \quad \text{or} \quad \frac{\text{cot} c}{\text{cot} B} = \frac{\text{cot} \theta}{\text{cot} C}.\]

3. To find the side \(a\), not opposite to the given angle;

\(b, \alpha\), and \(C\) being given

Here find \(\alpha\), as before, by N° (XII.) then from N° (XIII.) we have

\[
\text{cot} (a - \theta) = \frac{\text{cot} \theta \text{ cot} a}{\text{cot} b}.
\]

Hence \(a\) is known by adding \(\theta\).

Case 4.—Of the four following parts; viz. two sines, and two angles, one opposite, the other adjacent; three being given, to find a fourth.

This case presents four problems.

1. Given \(a, \alpha, B,\) to find \(C\).

Determine an are \(\theta\) by this condition,

\[
\text{cot} \theta = \text{cot} \alpha \text{ cot} B, \quad \text{or} \quad \frac{\text{cot} \theta}{\text{cot} \alpha} = \frac{\text{cot} C}{\text{cot} B}.
\]

Substitute
SUBSTITUTE this value of cot. \(c\) for it in Equation 3.

Substitute the value of cot. \(C\) for it in Equation \(N^o\) (IV.) and it will reduce to

\[
\cot C = \frac{\cot a \cot (B - \phi')}{\cot \phi''} \quad \text{(XIX.)}
\]

4. Given \(a, c, C\), to find \(B\).
Determine \(\phi''\) from \(N^o\) (XVIII.) ; then

\[
\cot (B - \phi'') = \frac{\cot c \cot \phi''}{\cot a} \quad \text{(XX.)}
\]

from which \(B\) becomes known.

Cafe 4.—Of these four parts; viz. the three angles and a side, (suppose \(c\)), any three being given, to find the fourth.

This case comprises three problems.

1. Given three angles to find a side.

Suppose Equation 1. \(N^o\) (XI.) to be applied to the solution of the supplemenental triangle, by changing \(a, b, c\), and \(C\) into \(a', b', c', \) and \(C'\). Then to bring it back to the triangle proposed, let there be substituted for \(a', b', c', \) and \(C'\), the corresponding values \(180^o - A, 180^o - B, 180^o - C\), and \(180^o - c\); those equations will then be transformed into the following, which are applicable to the present problem.

**TRIGONOMETRY.**

Substitute this value of \(\cot c\) for it in Equation \(N^o\) (IV.) and it will become

\[
\text{fin. } a = \cot \phi' \cot B = \cot a \cot B + \sin B \cot C.
\]

Whence \(D\) becomes known.

Here \(\phi'\) must be found by \(N^o\) (XV.) and then from \(N^o\) (XVI.) when

\[
\text{fin. } (a - \phi') = \cot C \text{ sin. } \phi' \frac{\cot B}{\cot a}.
\]

Whence \(a\) becomes known.

3. Given \(B, C, a\), to find \(c\).
Find a dependent angle \(\phi''\), by making

\[
\cot C = \cot a \tan \phi'' = \cot C \cos \phi'' = \cot \phi''.
\]

The following are the expressions for the sines of the half angles; viz. \(a, b, c\).

\[
\begin{align*}
\text{fin. } a & = \sqrt{\cot \phi''} \\
\text{fin. } b & = \sqrt{\cot \phi''} \\
\text{fin. } c & = \sqrt{\cot \phi''}
\end{align*}
\]

It may here be observed, that notwithstanding the denominators are negative in the above expressions, the whole fraction under the radicals are always positive.

2. Given \(A, B, c\), to find \(C\).
Here, by applying in like manner the equations \(N^o\) (XII.) and \(N^o\) (XIII.) to the supplemenental triangle, we shall have

\[
\cot \phi = \cot c \tan B; \quad \text{(XXIII.)}
\]

from which the supplemenental angle \(\phi\) may be determined, and thence

\[
\cot C = \cot a \text{ sin. } (A - \phi) \quad \text{(XXIV.)}
\]

3. Given \(B, C, \) and \(c\), to find \(A\).
Find \(\phi\) from \(N^o\) (XXI.) then from \(N^o\) (XXV.) there results

\[
\text{fin. } (A - \phi) = \cot C \cos \phi \quad \text{(XXV.)}
\]

from which \(A\) becomes known.

Of the Analogies of Napier.—In the introduction to the

The present article we had occasion to mention the analogies of Napier, which it may not be amiss to illustrate before we proceed any farther in our investigations. These analogies are four simple and elegant formulas, which we owe to the celebrated inventor of logarithms, of which two serve to determine any two angles of a spherical triangle by means of two opposite sides and their included angle; while the other two serve to find any two sides by means of their opposite angle and the contained side. They, therefore, together with equation \(N^o\) (I.), will serve for the solution of all the cases of oblique-angled spherical triangles. The investigation of these analogies may be given as follow.

If from Equation 1. \(N^o\) (II.) \(\cos e\) will be exterminated, there will result, after a little reduction,

\[
\cot A \sin e = \cot a \sin b - \cot C \sin a \quad \text{(XXVI.)}
\]

and, by a simple permutation of letters,

\[
\cot B \sin e = \cot b \sin a - \cot C \sin b \quad \text{(XXVII.)}
\]

Adding these equations together, and reducing them, we have

\[
\text{fin. } e = (\cot A + \cot B) = (1 - \cot C \sin (a + b)).
\]

Now
Now from N° (I.) we have
\[
\begin{align*}
\sin a &= \sin b = \sin c, \\
A &= \sin B = \sin C.
\end{align*}
\]
Clearing these equations of their denominators, and respectively adding and subtracting them, there results
\[
\begin{align*}
\sin c (\sin A + \sin B) &= \sin C (\sin a + \sin b), \\
\sin c (\sin A - \sin B) &= \sin C (\sin a - \sin b).
\end{align*}
\]
Dividing each of these two equations by the preceding, there will be obtained,
\[
\begin{align*}
\sin A + \sin B &= \sin C \times \frac{\sin a + \sin b}{\sin a + \sin b}, \\
\sin A - \sin B &= \sin C \times \frac{\sin a - \sin b}{\sin a - \sin b}.
\end{align*}
\]
Consequently, from the relation established under Arithmetic of Sines,
\[
\tan \frac{1}{2} (A + B) = \cot \frac{1}{2} C \cdot \cot \frac{1}{2} (a + b),
\]
\[
\tan \frac{1}{2} (A - B) = \cot \frac{1}{2} C \cdot \cot \frac{1}{2} (a - b).
\]
And these equations, expressed as analogies, are,
\[
\begin{align*}
\cot \frac{1}{2} (a + b) : \cot \frac{1}{2} (a - b) &= \cot \frac{1}{2} C : \tan \frac{1}{2} (A + B), \\
\sin \frac{1}{2} (a + b) : \sin \frac{1}{2} (a - b) &= \cot \frac{1}{2} C : \tan \frac{1}{2} (A - B).
\end{align*}
\]
These analogies being applied to the supplemental triangle, by putting 180° - A, 180° - B, &c. for a, b, &c. we have
\[
\begin{align*}
\cos \frac{1}{2} (A + B) : \cos \frac{1}{2} (A - B) &= \tan \frac{1}{2} c : \tan \frac{1}{2} (a + b), \\
\cos \frac{1}{2} (A + B) : \cos \frac{1}{2} (A - B) &= \tan \frac{1}{2} c : \tan \frac{1}{2} (a - b).
\end{align*}
\]
From a due consideration of these four analogies, it results,
1. That \(\frac{1}{2} (A - B) < 90°\), or that the difference of two angles of a spherical triangle is less than 180°.
2. That \(\frac{1}{2} (a + b) \) and \(\frac{1}{2} (A + B)\) are always of the same affection.
3. That the difference of two sides is always less than 180°.
4. That \(a - b\) and \(A - B\) have always the same sign; whence it follows, that the greatest angle is opposite to the greatest side, and reciprocally.
To thefe it may be added,
5. That the leat angle is opposite to the leat side, and the mean angle to the mean side.
One or other of these observations will serve to remove the ambiguity in the doubtful cases where \(a, b, \) and \(A, B, \) or \(A, B, \) and \(b, \) are given.
We may now collect the most commodious of these theorems, and present in one place all that will be usually required in the solution of oblique-angled spherical triangles.

1. \(\sin A \sin a = \sin B \sin b = \sin C \sin c\)
2. \(\tan \frac{1}{2} A = \sqrt\left\{\sin \frac{1}{2} (a + b - c) \sin \frac{1}{2} (a + c - b) \sin \frac{1}{2} (a + c - b)\right\}
3. \(\tan \frac{1}{2} B = \sqrt\left\{\sin \frac{1}{2} (b + c - a) \sin \frac{1}{2} (a + b - c) \sin \frac{1}{2} (a + b - c)\right\}
4. \(\tan \frac{1}{2} C = \sqrt\left\{\sin \frac{1}{2} (a + c - b) \sin \frac{1}{2} (b + c - a) \sin \frac{1}{2} (a + b + c)\right\}
5. \(\tan \frac{1}{2} a = \sqrt\left\{\cos \frac{1}{2} (B + C - A) \cos \frac{1}{2} (A + B + C) \cos \frac{1}{2} (A + C - B)\right\}
6. \(\tan \frac{1}{2} b = \sqrt\left\{\cos \frac{1}{2} (A + C - B) \cos \frac{1}{2} (A + B + C) \cos \frac{1}{2} (A + B - C)\right\}
7. \(\tan \frac{1}{2} c = \sqrt\left\{\cos \frac{1}{2} (A + B - C) \cos \frac{1}{2} (A + B + C) \cos \frac{1}{2} (A + C - B)\right\}
8. \(\tan \frac{b - a}{2} = \tan \frac{1}{2} c \sin \frac{1}{2} (B - A) \sin \frac{1}{2} (B + A)
9. \(\tan \frac{b + a}{2} = \tan \frac{1}{2} c \cos \frac{1}{2} (B - A) \cos \frac{1}{2} (B + A)
10. \(\tan \frac{c - b}{2} = \tan \frac{1}{2} a \sin \frac{1}{2} (C - B) \sin \frac{1}{2} (C + B)
11. \(\tan \frac{c + b}{2} = \tan \frac{1}{2} a \cos \frac{1}{2} (C - B) \cos \frac{1}{2} (C + B)
12. \(\tan \frac{a - c}{2} = \tan \frac{1}{2} b \sin \frac{1}{2} (A - C) \sin \frac{1}{2} (A + C)
13. \(\tan \frac{a + c}{2} = \tan \frac{1}{2} b \cos \frac{1}{2} (A - C) \cos \frac{1}{2} (A + C)
14. \(\tan \frac{B - A}{2} = \cot \frac{1}{2} C \sin \frac{1}{2} (b - a) \sin \frac{1}{2} (b + a)\)
TRIGONOMETRY.

15. \( \tan \frac{B + A}{2} = \cot \frac{1}{2} C \)  
   \[ \text{cof.} \frac{1}{2} \left( b - a \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( b + a \right) \]

16. \( \tan \frac{C - B}{2} = \cot \frac{1}{2} A \)  
   \[ \text{fin.} \frac{1}{2} \left( c - b \right) \]  
   \[ \text{fin.} \frac{1}{2} \left( c + b \right) \]

17. \( \tan \frac{C + B}{2} = \cot \frac{1}{2} A \)  
   \[ \text{cof.} \frac{1}{2} \left( c - b \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( c + b \right) \]

18. \( \tan \frac{A - C}{2} = \cot \frac{1}{2} B \)  
   \[ \text{fin.} \frac{1}{2} \left( a - c \right) \]  
   \[ \text{fin.} \frac{1}{2} \left( a + c \right) \]

19. \( \tan \frac{A + C}{2} = \cot \frac{1}{2} B \)  
   \[ \text{cof.} \frac{1}{2} \left( a - c \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( a + c \right) \]

20. \( \tan \frac{1}{2} c = \tan \frac{1}{2} \left( b - a \right) \)  
   \[ \text{fin.} \frac{1}{2} \left( b + A \right) \]  
   \[ \text{fin.} \frac{1}{2} \left( B - A \right) \]

21. \( \tan \frac{1}{2} c = \tan \frac{1}{2} \left( b + a \right) \)  
   \[ \text{cof.} \frac{1}{2} \left( B + A \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( b - A \right) \]

22. \( \tan \frac{1}{2} a = \tan \frac{1}{2} \left( c - b \right) \)  
   \[ \text{fin.} \frac{1}{2} \left( C + B \right) \]  
   \[ \text{fin.} \frac{1}{2} \left( C - B \right) \]

23. \( \tan \frac{1}{2} a = \tan \frac{1}{2} \left( c + b \right) \)  
   \[ \text{cof.} \frac{1}{2} \left( C + B \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( c - b \right) \]

24. \( \tan \frac{1}{2} b = \tan \frac{1}{2} \left( a - c \right) \)  
   \[ \text{fin.} \frac{1}{2} \left( A + C \right) \]  
   \[ \text{fin.} \frac{1}{2} \left( A - C \right) \]

25. \( \tan \frac{1}{2} b = \tan \frac{1}{2} \left( a + c \right) \)  
   \[ \text{cof.} \frac{1}{2} \left( A + C \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( A - C \right) \]

26. \( \cot \frac{1}{2} C = \tan \frac{1}{2} \left( b - a \right) \)  
   \[ \text{fin.} \frac{1}{2} \left( b + a \right) \]  
   \[ \text{fin.} \frac{1}{2} \left( b - a \right) \]

27. \( \cot \frac{1}{2} C = \tan \frac{1}{2} \left( b + a \right) \)  
   \[ \text{cof.} \frac{1}{2} \left( b + a \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( b - a \right) \]

28. \( \cot \frac{1}{2} A = \tan \frac{1}{2} \left( c + b \right) \)  
   \[ \text{fin.} \frac{1}{2} \left( c + b \right) \]  
   \[ \text{fin.} \frac{1}{2} \left( c - b \right) \]

29. \( \cot \frac{1}{2} A = \tan \frac{1}{2} \left( c - b \right) \)  
   \[ \text{cof.} \frac{1}{2} \left( c + b \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( c - b \right) \]

30. \( \cot \frac{1}{2} B = \tan \frac{1}{2} \left( a - c \right) \)  
   \[ \text{fin.} \frac{1}{2} \left( a + c \right) \]  
   \[ \text{fin.} \frac{1}{2} \left( a - c \right) \]

31. \( \cot \frac{1}{2} B = \tan \frac{1}{2} \left( a + c \right) \)  
   \[ \text{cof.} \frac{1}{2} \left( a + c \right) \]  
   \[ \text{cof.} \frac{1}{2} \left( a - c \right) \]

We are indebted for many of the above transformations to Gregory's Trigonometry; others have been derived from Bonnycastle's treatise on the same subject.

We shall now conclude this article, by illustrating the solution of spherical triangles by means of Napier's five circular parts. See PART and CIRCULAR PART.

Solution of right-angled spherical Triangles, by Napier's circular parts.—If either one or both the sides, including the right angle, come into the question, for it among the data, write its complement to a quadrant. Since then by the general rule delivered under the article CIRCULAR PART, and rendered logarithmic, the whole fine, with the fine complement of the middle part, must be equal to the fines of the disjunct parts, and the cotangents of the conjunct parts; from the sum of those data subtract the third datum; the remainder will be some fine or tangent, the side or angle corresponding to which, in the table of fines, &c. is the side or angle sought.

This universal rule being of great service in trigonometry, we shall apply it to the various cases thereof, and illustrate it with examples; which examples, in the case of disjunct or separate parts, will at the same time illustrate the common

method; but in the case of contiguous parts they admit of other solutions.

1. Given the hypotenuse BC, 60°, and the angle C, 30° 30'; to find the opposite leg AB. Since AB is the middle part, and C and BC are disjunct (see PART); the product of the whole fine, into the cofine of the complement AB, i.e. the fine itself of AB, is equal to the product of the fines of C and BC. Therefore from the log. fine of C 9.6606997  
   + fine of BC 9.9037530  
   Sum 19.5683235  
   Subtract whole fine 10.0000000  
   Remains fine of AB 9.5382353  

The nearest corresponding number to which, in the tables, is 20° 12'.

2. Given the hypotenuse BC, 60°, and the leg AB, 20° 12'; to find the opposite angle C. It is evident from the preceding problem, that from the sum of the whole fine, and the fine of the leg AB, the fine of the hypotenuse BC is to be subtracted, the remainder is the fine of the angle C. The example therefore of the former case is easily converted into an example of this.

3. Given the leg AB, 20° 12', and the opposite angle C, 23° 30'; to find the hypotenuse BC. It is evident from the first case, that from the sum of the whole fine, and the fine of AB, is to be subtracted the fine of the angle C, and the remainder is the fine of the hypotenuse BC.

4. Given the hypotenuse BC, 60°, and one leg AB, 20° 12'; to find the other leg. Since BC is a mean part, and A B and A C are disjunct parts, the product of the whole fine, into the cofine of the hypotenuse BC, is equal to the product of the fines of the complements, i.e. the cofines of the legs A B and A C. Therefore from the whole fine 10.0000000  
   Cofine of BC 9.6689700  
   Sum 19.6989700  
   Subtract cofine of AB 9.9724310  
   Remains cofine of A C 9.7265390  

The corresponding number to which, in the tables, is 32° 11'; therefore A C = 57° 49'.

5. Given the legs A C, 57° 49', and A B, 20° 12'; to find the hypotenuse BC. It is evident from the preceding case, that the whole fine is to be subtracted from the sum of the cofines of the legs A B and A C; the remainder is the cofine of the hypotenuse BC. The example, therefore, of the preceding case is easily applied to this.

6. Given the leg A C, 57° 49', and the adjacent angle C, 23° 30'; to find the opposite angle B. Since B is a middle part, and A and C are disjunct parts; the product of the whole fine, by the cofine of B, is equal to the product of the fine of C, and the fine of the complement, i.e. the cofine of A C. Therefore from the fine of C 9.6606997  
   Cofine A C 9.7265310  
   Sum 19.3872307  
   Subtract whole fine 10.0000000  
   Remains cofine of B 9.3872307  

The nearest number corresponding to which, in the tables, is 12° 15'; therefore B = 77° 45'.

7. Given the leg A C, 57° 49', and the opposite angle B, 77° 45'; to find the adjacent angle C. It is evident from the preceding case, that the cofine of A C is to be subtracted...
TRIGONOMETRY.

16. Given the oblique angles B, 77° 44', and C, 23° 30'; to find the hypotenuse B C. From the sum of the cotangents of C and B, subtract the whole fine; the remainder is the cofine of B C.

Solution of oblique-angled spherical Triangles. 1. In an oblique-angled spherical triangle A B C, \( \angle \geq 5^\circ \) two sides, A B and B C, being given, together with an angle, A, opposite to one of them, to find the other, C; the rule is,

As the sine of the fine B C is to the sine of the opposite angle A; so is the sine of the side B A to the sine of the opposite angle C.

Suppose, for example, B C, 39° 29'; A, 43° 20'; B A, 66° 45'; then will

\[ \begin{align*}
\text{Sine of } B C & = 9.8033572 \\
\text{Sine of } A & = 9.8364771 \\
\text{Sine of } B A & = 9.9032168 \\
\text{Sine of } C & = 19.7996939
\end{align*} \]

The nearest corresponding number to which, in the tables, is 82° 34'.

2. Given two angles C, 82° 34', and A, 43° 20', together with the side A B, 66° 45', opposite to one of them, C; to find the sine B C opposite to the other of them, A; say, as the sine of the angle C is to the sine of the opposite side A B; so is the sine of the angle A to the sine of the opposite side B C. The former example may suffice for the present case.

3. Given two sides A B, 66° 45', and B C, 30° 29', together with an angle opposite to one of them A, 43° 20'; to find the angle included by them, B. Suppose the angle C to be acute, since the other, A, is also acute, the perpendicular B E falls within the triangle. In the right-angled triangle A B E, therefore, from the given angle A, and side A B, find the angle A B E. Since B E is assumed as a lateral part in the triangle A E B, the angle E B C is a middle part, and the sine B C must be a conjoint part; the cofine of the angle E B C will be found by subtracting the cotangent of A B from the sum of the cofine of the angle A B E, and the cotangent of B C. If then the angles A B E and B C E be added together, or in case the perpendicular fall without the triangle, be subtracted from each other, you will have the angle required B.

E. gr. Whole fine 10.000000

<table>
<thead>
<tr>
<th>Cofine of A B</th>
<th>9.5963154</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum</td>
<td>19.5963154</td>
</tr>
<tr>
<td>Cotangent of A</td>
<td>10.0252805</td>
</tr>
<tr>
<td>Cotangent of A B E</td>
<td>9.5710349</td>
</tr>
<tr>
<td>Cofine of C</td>
<td>9.5429713</td>
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<tr>
<td>Cotangent of C</td>
<td>10.0841590</td>
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<tr>
<td>Sum</td>
<td>19.6271242</td>
</tr>
<tr>
<td>Cotangent of A B E</td>
<td>9.6330685</td>
</tr>
</tbody>
</table>

Cofine of E B C = 9.5942557. The nearest number corresponding to which, in the tables, is 9° 29'; therefore A B C = 79° 3'.

4. Given two angles, A, 43° 20', and B, 79° 3'; together with the adjacent side A B, 66° 45'; to find the sine B C opposite to one of them.

From one of the given angles, B, let fall a perpendicular B E to the unknown side C A; and in the right-angled triangle A B E, from the given angle A, and hypotenuse A B, find the angle A B E; which, subtracted from the other angle.
angle A B C, leaves the angle E B C. But if the perpendicular shall fall without the triangle, the angle A B C should have been subtracted from A B E. Since as the perpendicular B E is taken for one of the lateral parts, the middle part in the triangle A B E is the angle B, and the conjunct part A B; in the triangle E B C the middle part is the angle B, and the conjunct part C B; the cotangent of the side B E C is found by subtracting the cofine of E B A from the sum of the cotangent of A B, and the cofine of E B C. The example of the preceding case is easily applied to this.

5. Given two sides A B, 66° 45', and B C, 39° 29', with the angle A opposite to one of them, 45° 20', to find the third side A C.

Letting fall, as before, the perpendicular B E; in the right-angled triangle A B E, from the given angle and hypothenuse A B, find the side A E. Since assuming B E for a lateral part in the triangle A B E, A B is the middle part, and A E is the separate part; and in the triangle B E C, B C is the middle part, and E C a disjunct part; the cofine of E C is found by subtracting the cofine of A B from the sum of the cofines of A E and C B. If then the segments A E and E C be added together, or in case the perpendicular fall without the triangle, be subtracted from each other, the side A C will be had.

6. Given two sides A C, 65° 31', and A B, 66° 45', together with the included angle A, 43° 20', to find the third side B C opposite thereto.

Letting fall the perpendicular B E, find, in the right-angled triangle, the segment A E E; which, subtracted from A C, leaves E C. If the perpendicular fall without the triangle, A C is to be subtracted from A E. Since by assuming the perpendicular B E for a lateral part in the triangle A E B, A B becomes a middle part, and A E a separate part; in the triangle E B C, B C is the middle part, E C a separate part; the cofine of B C is found by subtracting the cofine of A E from the sum of the cofines of A B and E C.

7. Given two angles, 43° 20', and B, 79° 3', together with the side E C, 39° 29', opposite to one of them; to find the side A B adjacent.

Letting fall the perpendicular C D from the unknown angle C, to the opposite side A B; and that falling within the triangle; from the given angle B, and the hypothenuse B C, seek in the right-angled triangle C B D for the segment C D. Since assuming the perpendicular C D for a lateral part in the triangle C D B, D B is the mean part, and the angle B a conjunct part; and in the triangle C D A, A D is the middle part, and the angle A a conjunct part; the cofine of the segment A D is found by subtracting the cotangent of the angle C D from the sum of the cofine of D B, and the cotangent of the angle A. If then the segments A D and D B be added, or in case the perpendicular fall without the triangle, be subtracted from each other, the result will be the side A B required.

8. Given two sides A B, 66° 45', and B C, 39° 29', with the included angle 79° 3'; to find the angle A opposite to one of them.

Letting fall the perpendicular C D, find the segment B D, as in the preceding problem. This, subtracted from A B, leaves A D. If the perpendicular fall without the triangle, A B is to be added to D B. And since by assuming the perpendicular C D for a lateral part in the triangle C D B, B D is the middle part, and the angle B a conjunct part; and in the triangle C D A, A D is the middle part, and the angle A a conjunct part, the cotangent of the angle A is formed by subtracting the line of D B from the sum of the cotangent of the angle B, and of the line of A D.

9. Given two angles A, 43° 20', and B, 79° 3', together with the adjacent side A B, 66° 45'; to find the angle C opposite to the same.

From one of the given angles B, letting fall the perpendicular B E to the opposite side A C; in the right-angled triangle A B E, from the given angle A, and hypothenuse A B, we find the angle A B E; which, subtracted from A B E, leaves the angle B E C. In the perpendicular C D falls the angle A B E; the perpendicular C D is to be subtracted from the angle B E C. Since by assuming B E for a lateral part in the triangle C E B, the angle C is a middle part, and the angle C B E a disjunct part; and in the triangle A E B, the angle A is the middle part, and the angle A B E the disjunct part: the cofine of the angle C is found by subtracting the sum of the cofine of A B, from the sum of the cofine of the angle A, and the cofine of A E B.

10. Given two angles, 43° 20', and C, 82° 34', together with the side A B, 66° 45', opposite to one of them; to find the other angle.

From the angle B sought, let fall a perpendicular B E; and in the right-angled triangle A E B, from the given angle A, and hypothenuse A B, find the angle A B E. Since assuming the perpendicular B E for a lateral part in the triangle E C B, the angle C is the middle part, and the angle C B E a disjunct part; and in the triangle A B E, the angle A is the middle part, and the angle A B E a disjunct part: the sum of the cofine of A B from the sum of the cofine of C, and of the cofine of A E B. If then A B E and E B C be added, or in case the perpendicular fall without the triangle, be subtracted form each other, the result will be the angle required A B C.

11. Given the three sides, to find an angle opposite to one of them.

1. If one side A C (Plate II. fig. 8.) be a quadrant, and the leg A B be less than a quadrant, find the angle A. Continue A B to F, till A F become equal to a quadrant; and from the pole A draw the arc C F, to cut the arc B F at right angles in F. Since in the right-angled triangle C B F, we have given the hypothenuse B C, and the side F B, or its complement A B to a quadrant; we shall find the perpendicular C F, which being the measure of the angle A C B, that angle is found of course.

2. If one side A C be a quadrant, and the other A be greater than a quadrant, seek again the angle A: from A B subtract the quadrant A D, and from the pole A describe the arc C D, cutting the arc A B at right angles in D. Since in the right-angled triangle C D B, the hypothenuse B C, and side D B, or excesses of the side A B beyond a quadrant, is given, the perpendicular C D will be found as before, which is the measure of the angle A required.

3. If the triangle be isoseles, and A C = C F; and the angle A C F be required; bisect A F in D, and through D and C draw the arc D C. Since D C is perpendicular to A F, the angles A and F, and A C D and D C F, are equal; from the hypothenuse A C, and leg A D, given in the right-angled triangle A C D, we find the angle A C D; the double of which is the angle required A C F; and from the same data may the angle A or F be found.

4. If the triangle be fealeous, and the angle A (Plate III. fig. 5.) be required; from C let fall the perpendicular C D, and seek the half-difference of the segments A D and D B, by laying, as the tangent of half the bale A B is to the tangent of half the sum of the legs A C and C B; so is the tangent of their half-difference to the tangent of the half-difference of the segments A D and D B; add then the half-difference of the segments to the half-bale, to find the greater segment; and subtract the same from the feet for the less.

Thus
Thus having in the right-angled triangle $\triangle CAD$, the hypotenuse $AC$, and the side $AD$, the angle $A$ is found thence. After the same manner is $B$ found in the other $\triangle CBD$, from $C B$ and $C D$ given.

12. Given the three angles $A$, $B$, and $C$, to find any of the sides. Since in lieu of the given triangle, another may be assumed, whose sides are equal to the given angles, and the angles to the given sides; this problem is resolved after the fame manner as the preceding one.

TRIGNONUM, or Triangular Harp, an ancient musical instrument. (See Plate of ancient Instruments.) One of this kind was taken from an ancient painting in the museum of the king of Naples, in which it is placed on the shoulder of a little dancing Cupid, who supports the instrument with his left hand, and plays upon it with his right. The trigonum is mentioned by Athenæus, lib. iv. and by Julius Pollux, lib. iv. cap. 9. According to Athenæus, Sophocles calls it a Phrygian instrument; and one of his Deipnosophists tells us, that a certain musician of the name of Alexander Alexandrinus was so admirable a performer upon it, and had given such proofs of his abilities at Rome, that he made the inhabitants παραγωγοὶ, μουσικῶς μαθον. It may not be unworthy of remark, that this little instrument resembles the Cither harp, or $\frac{1}{2}$ of a filfnis, or of a filfnis. The performer too, being a native of Alexandria, as his name implies, makes it probable it was an Egyptian instrument upon which he gained his reputation at Rome.

TRIGUERA, in Botany, was so called by the late Abbé Cavanilles, in honour of his friend Don Candido Maria de Trigueros, who gathered this plant, then supposed entirely non-descript, in Andalusia. Another genus was originally thus designated, now Lagenaea lobata of Willdenow, Sp. Pl. v. 3. 733. The present feems to be a good genus, though the plant on which it is founded proves to be the rare and little-known Verfachum Ojibeki of Linnaeus, as the writing of the present article first discovered.—Cavan. Diff. ii. after page 106. Schrebl. Gen. 114, Willd. Sp. Pl. v. 1. 839, Mart. Mill. Dict. v. 4.—Clafs and order, Pentandria Monogynia. Nat. Ord. Linde, Linn. Sonca, Jufh. Gen. Ch. Cal. Perianth inferior, of one leaf, permanent, divided half way down, into five unequal acute segments. Cor. of one petal, bell-shaped; tube very short; limb inflated, plaited, five-creft, longer than the calyx; the two upper segments refexed. Nectary a short, membranous, five-toothed cup, surrounding the germin. Stam. Filaments five, very short, inserted into the teeth of the nectary at the outside; anthers arrow-shaped, converging. Pifi. Germin inferior, roundish, with two furrows; ilye thread-shaped, straight, rather longer than the flamines; stigma obtuse. Peric. Berry dry, nearly globular, of four cells. Seeds two in each cell, roundish, compressed, rough, one over the other. Eff. Ch. Corolla bell-shaped, irregular. Nectary with five teeth, surrounding the germin, and bearing the flamines. Berry dry, of four cells, with two seeds in each. Obs. Cavanilles observed one or two of the cells to be occasionally abortive.

1. T. ambrosian. Mulky Trigueria. Cavan. Diff. 2. A. Willd. n. 1. (Verfachum Ojibeki; Linn. Sp. Pl. 535. Willd. Sp. Pl. v. 1. 1006; excluding, from both, he reference to Toucormont, and the left-named place of growth. Ob. it. 52.)—Leaves deciduous, obovate, ferried. Calyx villos.—Native of Spain, towards the coast, and of Salé in Barbary, flowering in the spring. Root annual. Stems simple, erect or decumbent, angular, leafy, fpan high. Leaves alternate, two inches long, somewhat hairy, coarsely ferrated, tapering at the base, and somewhat decurrent; the upper ones smaller. Flower-falx axillary, in pairs, single-flowered, drooping. Calyx covered with woolly hairs. Corolla deep violet, an inch wide; nearly black in the throat. Seeds blackish, hard. The whole plant, called in Spanish Almizquera, and Moradilla, has a pleasant musky scent. It is spoken of as possessing the emollient narcotic virtues of Deadly Nightshade, and Hennock, being, like those plants, useful in cancers of the breast; so far at least as to allay the pain.

2. T. inodora. Scentselp Trigueria. Cavan. as above. Willd. n. 2.—Leaves febile, ovato-lanceolate, entire. Calyx smooth.—Found in Andalusia with the foregoing, and vulgarly named Moradilla blanca.ine. Differs from the first in the smoothness of every part. The flowers are handfome, drooping. Throat very pale violet, or yellowish-white, with five stipes; limb pale violet, or purple, with entire pointles lobes.

TRIGUEROS, in Geography, a town of Spain, in the province of Seville; 8 miles N.N.E. of Moguer.

TRIGNYA, in Botany, from τόνος, three, and γύνα, a female, the name of an order in many classes of the Linnean artificial system, distinguished by the flowers having three filfnis, or of three filfnis. One of the latter, Vifum, and Sambucus, in the fifth clas, are inftances. The order in queftion occurs in the 1st, 2d, 3d, 5th, 6th, 8th, 9th, 10th, 11th, 12th, and 13th clas; in the 4th and 7th it is wanting. Indeed in the 13th clas, this order is but uncertain, Delphinium and Aconion, on which Linnaeus founded it, being variable in the number of filfnis. In the 12th clas, Iofandria, it forms such unnatural and troublesome diftincions, as to be much better abolished. See Pentagynia.

TRIHIILATÆ, fo denominated from trex, tris, three, and bilum, the scar of a feed, because some of the principal genera are remarkable for the broad fcares of their three feeds; the 23d natural order among the fragmenta of Linnaeus, flanding between his Caryophyllæ and Carydites, in the latter of which it only has any, even the slightest, affinity.

This is in itself but a heterogeneous assemblage, embracing several of Jullien's orders, particularly the Sop니다, Acera and Malpigida, as also his Milie. It consists of three fections. In the firft are Melis, Trachila, Guarea and Turra; to which Linnaeus was afterwards inclined to add Cordela and Scentenius. The fecond fection consists of Malpigida, Baumferia, Hires, Tripeteris, Aeer and £felsius; and the third, of Staphylea, Sapindus, Paulhinus, Cardiospermum and Tropadon, in which Linnaeus afterwards added Hippocratea, more certainly belonging to the second fection.

Cavanilles, in his Differtations on Monadelphous Plants, has added many new genera to the Tribilation; but he is excelled beyond measure by Gisecke in his edition of the Præleffiones of Linnaeus; where an account is given, not only of these genera, but of various others, collated by Cava- nilles as monadelphous, though contrary to the general opinion, see Monadelphæ.

TRIHING, Triathing, or Thriting, from the Saxon, direting, an extent containing three or four hundred, or the third part of a thric, or province. See Tritheing.

Mr. Thereby thinks the word ought to be written threating. See Thoreth. Ducatus Leodenf. p. 85.

These thritings still subsist in the county of York, where by an easy corruption they are denominated riders.

The word is also used for a court held within that circuit, which was the same with what we now call a court-baz, which is above a court-baron, and inferior to the county court.

TRIKALA,
TRIKALA, in Mythology, is a name of the Hindoo deity Siva. One of his names is Kala, or Time, and the epithet Tri prefixed denotes his omniscience and omnipresence as to all times, past, present, and to come; a mythological triad or union of time. The honourable designation of Trikala is sometimes given to, or assumed by, individuals of supposed profundity of knowledge, especially if of an inspired or prophetic description. The conso of Siva in this form or character is Trikali, or Trikala-devi-kumari, meaning the divine triple-maid, or triform divine maiden Kali. See TRISAKTI.

TRIKALA-DEVI. See the preceding article.

TRILATERAL, a term applied to all three-sided figures. See TRIANGLE.

TRILEUCUM PROMONTORIUM, or Laparia Caryi, in Ancient Geography, a promontory on the northern coast of Spain, N. of the name of the Callaici. According to Ptolemy, it lay between Flavium Brigantium and the mouth of the river Mearus or Mearius.

TRILIX, in Botany, a Latin word, used for a tussie of three threads, woven or twined together; but how it applies to this plant, we are not informed. Mutis, its discoverer, called the genus Jacquinia. De Theis understands the above name as merely equivalent to triple, and alluding to the three calyx-leaves, and three petals, which perhaps is right. —Linn. Mant. 153. Schreb. 347. Willd. Sp. Pl. v. 2. 1129. Mart. Mill. Dict. v. 4. Juff. 435.—Clasf and order, Polyandria Monogynia. Nat. Ord. uncertain.

Gen. Ch. Cal. Perianth inferior, of three ovate, acute, spreading, flat, permanent leaves. Cor. Petals three, lanceolate, acute, smaller than the calyx. Stam. Filaments numerous, capillary, the length of the corolla; anthers roundish, minute, two-lobed. Fil. Germ. superior, five-angled; style cylindrical; stigma simplex. Peric. Berry oblong, five-angular, of five cells, covered by the calyx. Seeds numerous, roundish, minute.

Eff. Ch. Petals three. Calyx of three leaves. Berry of five cells, with many seeds.

1. T. butea. Linn. Mant. 247. Willd. n. 1. —Gathered at Cartagena, in South America, by Mutis, from whose description alone, contrary to his usual practice, Linnaeus adopted this genus into his system. This, the only species, is a shrub two fathoms in height, with very numerous, round, roughish branches. Leaves alternate, stalked, somewhat peltate, ovate, rather heart-shaped, pointed, serrated, veiny, downy. Footstalks round, smooth. Flowers yellow, not from the corolla, but the anthers, generally terminal, racemose, their partial flalsk simple, round, downy.

TRILL, in Music, a plain shake upon a single note, formed by a beating in the throat on the vowel oo, or by the shaking of the palate on the throat in one found upon a note: this grace is usually made in cloths or cadences, and when on a long note, admiration or passion is expressed, the trill is made in the latter part of such note; but most commonly on binding notes and such as precede the closing note. See TRILLIUM.

TRILL-HOOK, those used to hold the sides of a cart up to the horse.

TRILLETTO, in the Italian Music, a little short shake or quaver; it differs from trillo only in point of continuance, being its diminutive.

TRILLION, in Arithmetic, the number of a billion of billions. After billions, we reckon by trillions, which makes a class of numeration, and is divided, like the other classes, into three places: thus we say, trillions, ten of trillions, hundreds of trillions, &c.
TRILLIUM.

ątalked."—In sphagnous bogs, on the high mountains of Pennsylvania, Carolina, and Canada, flowering in May and June. Flowers white, with purple veins at the bottom. Berry scarlet. Purp. We received from the late Rev. Dr. Muhlenberg, in 1799, a specimen answering precisely to this description, but not at all to Willdenow's name of undulatum. The leaves are an inch and half long, taper-pointed, on short stalks. Flower-stalk half that length. Petals an inch long, white, with slender parallel veins, which are of a fine purple at the base, even in the dried specimen. Authors purple. German and flyte yellowish-white.


5. T. pumilum. Blunt-leaved Trillium. Pursh n. 5. (T. pusillum; Michaux Boreal-Amer. v. 1. 215.)—Flower-stalk erect. Petals scarcely longer than the calyx. Leaves ovate-oblong, obtuse, fleshy.—Native of the pine-woods of Lower Carolina, flowering in May. Petals pale flesh-coloured. Michaux. Specimens in the Linnaean herbarium, which answer well to this description, were most unaccountably confounded by Linnæus with his felle. They are incribed "Trillium, füe Tradescantia affinis, flore colorato unico tripetala, radice tuberofa."—Clayton. The stem is slender, five or six inches high. Leaves an inch and a quarter, or an inch and a half, broad, of a rather narrow elliptical shape. Flower on a very short stalk; in one specimen nearly fleshy. Calyx-leaves exactly like the foliage, but only a quarter the size. Petals with fine, copious, interbranching veins, becoming purplish as they advance in age.

6. T. cernuum. Drooping Trillium. Linn. Sp. Pl. 484. Wildl. n. 1. Ait. n. 1. Pursh n. 6. Sm. Speciel. 3. t. 4. Curr. Mag. t. 954. (Solanum tripylum, flore hexapetala carneo; Cat. Carol. v. 1. 45. t. 45, on the authority of the author's herbarium, though his figure gives no idea of the plant.)—Flower-stalk recurved. Petals lanceolate, the fize and shape of the calyx-leaves, reflexed. Leaves rhomboid, abruptly pointed, on very short stalks.—In shady rocky situations, from Pennsylvania to Carolina, particularly on the banks of Schuylkill, near Philadelphia, flowering in May. Petals white. Berries purple. This may be called the largest of the genus, as I have often seen it near two feet high, with leaves measuring nine inches in diameter. Purp. Our garden speciemens are but one-third as large. The flower is perfectly reflexed. Petals white, with green ribs. Authors and Briquet purple. German pale yellow, ovate, with five wings.

7. T. erectum. Upright-stalked Trillium. Linn. Sp. Pl. 484. Wildl. n. 2. Ait. n. 2. Pursh n. 7. Curr. Mag. t. 470. (T. rhomboideum; Michaux Boreal-Amer. v. 1. 215. Redout. Lilac. t. 154. Solanum tripylum canadense; Cornut. Canad. 166. t. 169.)—Flower-stalk erect. Flower inclining. Petals elliptical, pointed, spreading, the length of the calyx. Leaves rhomboid, pointed, fleshy.—On the mountains, in boggy soil, from Pennsylvania to Carolina, flowering in May. Purp. The leaves are three or four inches long, and three broad at the obtuse lateral angles. Flower-stalk nearly three inches long, erect, except a little curve at the top, from the drooping of the flower, which is fleshy, and larger than any of the foregoing species. Calyx-leaves an inch and quarter long, ovate, pointed, spreading, green. Petals the same length, but broader and more elliptical, dark purplish-brown. German and fliwet purple. Berry, according to Pursh, almost black. This is certainly T. erectum of Linnaeus, though the specimen in his herbarium has no resemblance to it, having half a dozen flower-stalks, and not being an original specimen, nor of any authority. The specific name is not one of the best, there being several species equally erect, but rhomboideum is liable to the same objection. Had we found a better in any work of character, we might have been induced to ferve from our general rule of not changing established Linnean names. We do not profess to be bound to keep any others, unless they are good.

8. T. pendulum. White Small-flowered Trillium.—Wildl. Hort. Berolin. t. 35. Ait. n. 3. Pursh n. 9? (T. erectum β; Curr. Mag. t. 1027. Pursh n. 7.)—Flower-stalk erect. Flower inclining. Petals ovate, pointed, spreading, longer than the calyx. Leaves rhomboid, pointed, fleshy.—Native of the mountains of Pennsylvania and Carolina. We received a specimen from Dr. Muhlenberg in 1805, the same year in which Mr. Maffon sent plants to Kew. It flowers in April and May, and though nearly allied to the last, must surely be a distinct species. Every part is much smaller; the leaves more rhomboid; flower less strongly fetid than the erectum, with white petals, a reddish germen, and yellow authors and flyte. Mr. Pursh seens to have inferred this species twice; see his n. 7, and 9. We have not had an opportunity of consulting the Hortus Botanicus, but we rely on Mr. Dryander in Hort. Kew.

9. T. grandiflorum. Large-flowered Trillium. Salis. Parad. t. 1. Pursh n. 10. Ait. n. 4. (T. erythrocarpum; Curr. Mag. t. 855, excluding Micaux's synonym. T. rhomboideum γ; Michaux Boreal-Amer. v. 1. 216.)—Flower and its stalk drooping. Petals ovate; their claws converging into a tube; limb spreading thrice as broad as the calyx, and much longer. Leaves ovate, somewhat rhomboid, pointed.—On the mountains and rocky banks of rivers, in Virginia and Carolina, flowering in May. We received a specimen in 1797 from the honourable Mrs. Barrington's garden at Mongewell, the root having been sent perhaps a year or two before from North America. Mr. Maffon is said to have sent the same to Kew in 1799. This is a large and landfome species. The petals are snow-white, veiny, two inches long; their bases convoluted into a sort of tube. Authors yellow. Calyx-leaves ovato-lanceolate, an inch and half long, green.

10. T. obovatum. Obovate Trillium. Pursh n. 8.—Flower-stalk erect. Petals obovate, bluntish, flat, spreading, fercarly longer or broader than the calyx. Leaves ovate, rhomboid, pointed, perfectly fleshy.—Found in Canada, near Montreal. Flowers dark rofe-coloured, probably white when first opening. Purp. This author mentions some specimens in the herbarium of A. B. Lambert, &c. agreeing in every respect herewith, which are the T. camtsibacium of Pallas. This perhaps is what Dr. Sims speaks of, under a similar name, in Curr. Mag. t. 855. We have not examined either.

Trillium, in Gardening, furnishes plants of the low, tuberous-rooted, flowery, perennial kind, among which the species mostly cultivated are, the drooping trillium (T. cernuum); the upright trillium (T. erectum); and the fleshy-flowered trillium (T. fleshy).

Method of Culture.—These plants may be increased by seeds, which should be sown on a shady border as soon as they become ripe in the autumn; when they appear in the spring, the plants should be kept clean from weeds, and in the
the autumn following be planted out where they are to remain and flower.

They succeed best in light soils, where the situation is rather shaded.

They all afford variety in such places.

TRILLO, in Geography, a village of Spain, situated on a small river near its union with the Tagus, and once famous for its curious water-mills, for sawing of timber brought down by the stream, but no longer existing. It is now celebrated for its medicinal waters, efficacious in cutaneous complaints, both externally and internally applied. The baths are up the river, on the opposite side of the Tagus, about the distance of a mile. They are divided into "Los quatro Banos," called the king's bath, divided into four separate baths, all equally commodious and handsome, with their proper appurtenances. The countess's bath, so named after the lady of the count de Cifuentes, who is lord of the place, is close to the river, but judiciously built and remarkably solid, to refurbish every impurity of the stream. According to the analysis of Dr. Ortega, these waters participate of five substances, two volatile, and three fixed: viz. a phlogistic vapour, extremely anodyne, penetrating, and friendly to the nervous system; of a moderate quantity of gas, calcareous earth, common salt, selenitic salt; and that to sixteen ounces of water, one may calculate twenty-five grains and a half of fixed principle. Dr. Ortega observes, that the lightness of this water may enter into competition with that of distilled water, the purest we know of: therefore its effects may be more easily accounted for; that the heat of the water does not equal that of the blood, in a person in good health, and comes near to that tepid degree prescribed by the physicians in artificial baths.

TRILLO, Ital. a shake, in Music. Tofi has devoted his third chapter (in Galliard's Translation, p. 41.) to the importance, use, and acquisition of a shake. He advises the vocal student, with the assistance of the matter, to strive at retaining one that is "equal, distinctly marked, easy, and moderately quick, which are its most beautiful qualifications." The student will find the shake on the femitone or half-note much easier to acquire than that on the whole tone; which it will be necessary to practise first, and most frequently ever, as it includes the other. Tofi describes seven different kinds of shake, but none are worth the study but those on the tone and half-tone, which must at first be practised slowly, and its rapidity increased by minute degrees.

The beat, or trillo mormente, differs little from the shake; in fact it is the shake revered, ending upon the upper of two notes, instead of the lower. This grace was much used by fingers in the former part of the last century, particularly in recitatives, and after the appoggatura from the note below. Mingotti was the last great finger whom we remember to have frequently used the trillo mormente, or beat. Maneini, however, gave a chapter to it in 1774. But he was of the Bernacchi school, which would now be called animal.

TRILLOBOUS LEAF, among Botanists. See Leaf.

TRILOCULAR CAPSULE, See Capsule.

TRILOKAN, in Mythology, a name of the Hindoo deity Siva. The name means with three eyes, that god being in some of his forms, and often in pictures and statues, so represented. Siva corresponds in many points with the many-named and multifiform Jupiter of the Greeks. We are informed by Paufanias, that Triophalamos was an epithet of Zeus, and that a statue of him with three eyes was found so early as the Trojan war. From these circumstances, combined with many others, Sir W. Jones was led to conclude that the identity of Jove and Siva, falls little short of being demonstrated. See SIVA.

TRILOPUS, in Botany, a name given by Mitchell to the Linnean genus Hamamelis. See that article.

TRIM, in Carpentry, is to fit one piece into another.

TRIM OF A SHIP, is her belt plouche, proportion of ballast, arrangement of her sails, and position of her masts for falling.

Thus, the trim of the hold denotes the most convenient arrangement of the various materials contained in it, with relation to the ship's motion or stability at sea.

Trim, when applied to the sails, denotes the general arrangement which is best calculated to accelerate the ship's course, according to the direction of the wind.

Trim, when expressed of the masts, denotes their position with regard to the ship and to each other, so that they should not be too far forward or aft, nor too near nor too far apart; and, according to the situation or quality which communicates a greater velocity to the vessel, they should either be upright, or inclining aft or forward.

Hence, to find the belt way of making a ship fail swiftly, is to find her trim.

"Trim a Boat, To," is to set the paffengers so as to keep the boat even on both sides. See Boat.

"Trim the Sails, To." See Tack.

TRIMMED, Shorn, in Sea Language, denotes the situation of a ship's sails in a fleet wind.

Trim, in Geography, the shire-town of the county of Meath, Ireland, situated on the river Boyne. Though the affize-town, it is a place of no importance, but it was formerly walled and defended by a strong castle, and it has some ruins of religious foundations. Before the Union, it was represented in parliament. It is 22 3/4 miles N.W. by W. from Dublin.

TRIMACRUS, or GRIMACE, in the Ancient Prosody, a foot in verse, consisting of three long syllables.

TRIMALLORE, in Geography, a town of Hindoostan, in the Carnatic; 15 miles N. of Tanjore.

TRIMANETORE, a town of Hindoostan, in the Carnatic; 15 miles E. of Warriore.

TRIMAPORE, a town of Hindoostan, in Maravar; 9 miles N. of Trumian.

TRIMARKISIA, in the Manoe and War, a body of horse among the ancient Gauls, so called because each soldier had three horses attending him, so that when one was either killed in battle, or overcome by fatigue, he might immediately mount another. The Tartars of the Krim retain the practice; for they never undertake an excursion, without allowing three horses to one rider; and many ancient nations, beside the Gauls, observed the same method.

TRIMBERG, or Trimberg, in Geography, a town of the duchy of Wurzburg; 20 miles E. of Schweinfurt.

TRIMBUCK, a town of Hindoostan, in Baglan; 18 miles W. N.W. of Nafuck.

TRIMELES, in the Ancient Greek Music, a name or air for flutes.

TRIMELWADI, in Geography, a town of Hindoostan, in the Carnatic; 15 miles N. N.W. of Tanjore.

TRIMERES, in the Ancient Greek Music, a name which was executed in three different modes successively: the Phrygian, the Dorian, and the Lydian. Some ascribe the invention of this compound name to Saccadas the Argian, and others to Clonas of Thegea.

TRIMILCHI, a name by which the English Saxons called the month of May; because they always milked their cattle three times a day in that month.
TRIMITHUS, in Ancient Geography, a town in the eastern part of Cyprus, at some distance from the coasts, N. of Eucoilla, and E. of the promontory Pedalmis.

TRIMMANUM, or TRIAMMHHON, a town of Lower Moesia, near the Danube; marked in Anton. Itin. on the route from Viminacium to Nicomedia, between Scadana and Exapantnus.

TRIMMERS, in Architecture, pieces of timber framed at right angles to the joints, against the ways for chimneys, and well-holes for stairs.

TRIMODIA, among the Romans, a bag like an inverted cone, in which fowers carried their feed. It was from supplied from their neck, and was so called from its containing three bunches.

TRIMONEER, a corruption of timoneer.

TRIMONTIUM, or TRIMONIUM, in Ancient Geography, a town of Albion, belonging to the Selgovae, according to Ptolemy; probably situated where Amnian now stands. —Also, one of the names of Philippopolis in Thrace. Ptol.

TRIMPS, in Geography, a town of Prussia, in Bartenland; 12 miles S. of Inferburg.

TRIMURTI, in the theological disquisitions of the Hindoos, is a word of mythical and varied import. Its most obvious meaning in the Sanscrit tongue is three forms; but as some fects of Eastern theologians profefs to recognize the unity of the deity, the term is used singularly, and is equivalent to triform. In the Trimurti, the Hinduu fancies a union or reunion of the three great forms or attributes of the godhead, personified in Brahma, Vishnu, and Siva; or creation, preservation, and destruction. Many other trine conjunctions are found typified by this mysterious affimblage, of which some notice is taken under our articles O'M, Siva, and Trisula.

The Trimurti, or divine triad, is represented to the senses under the form of three heads joined. The well-known monolithic sculpture in the Elephanta cavern temple is of this subject. Of this trine bust, Niebuhr, Maurice, and others have given representations. (See Elephanta and Mahakala.) One very like it was dug out of the ruins of an ancient temple on the island of Bombay, by the author of the Hindoo Pantheon, and an engraving is given of it in plate 81 of that work. A second Trimurti was found at the same time, but instead of being merely three heads, they are furnissed with a body. This usual form is also engraved for the work just mentioned; and the granite originals of both plates are deposited by the author in the museum at the East India House. The miniature bust of the gigantic sculpture in the Elephanta cave is so large as to weigh several tons. The Hindoos have other modes of representing the Trimurti; three heads and bodies on one legs, and other familiar whimsicalities, not unlike the crude delineations of the early Trinitarians of the West.

The Hindoos are very prone to combinations of three in one, and fancy they see something very mysterious in such typifications. As well as that just noticed of the powers or attributes of the deity, they combine three letters in a monogram, and have such a reverence for it, that the found which its articulation would convey is never uttered, or uttered most reverently. These characters are equivalent to our A, U, M, and the found would be like O'M.

The sun is a Trimurti, his properties of creative heat, preserving light, and destructive energy in an igneous form, comprehending the grand attributes of the deity, personified in Brahma, Vishnu, and Siva.

The Hindoos have a female Trimurti, composed of the confrons or Saktis, or energies of the great powers. These are Saraswati, Lakshmi, and Parvati; which fee.

Comparing the Hindoo triad with three of the gods of Greece, Cronus, Jupiter, and Mars, are those secret in character and attributes to the Eastern polytheistic trinity. But the Greeks, largely as they seem to have borrowed from the mythology of the Hindooos, do not appear to have popularly adopted their male Trimurti. The female triad may be recognizable in the Parce of the Weft, as noticed under Sakti. The three goddesses give each a name to a fared river, and a fuppofed junction of these waters is a fruitful subject to the Hindoo enthuasif or poet. See Taiveni and Saraswati.

Several other articles beginning with the Sanscrit word tri, contain something illustrative of the propenfity of the Hindoos to triune combinations.

TRINACIA, or TRINACRIA, in Ancient Geography, a rich and powerful town of Sicily, and confidered as the chief town of the island. Some writers have called it Tracia.

TRINCA, in Geography, a town of South America; in the province of Tucuman; 66 miles N. of St. Miguel de Tucuman.

TRINCATTY, one of the Nicobar islands. N. lat. 8° 6'. E. long. 94° 4'.

TRINCAVELLI, Vettor, in Biography, an eminent physician, was born at Venice about 1491. He studied at Bologna and Padua; and having graduated at the latter university, he settled at Venice, where he became professor of philosophy, and acquired distinction in the practice of medicine. In 1551 he was promoted to the chair of medical professor at Padua, with a very considerable stipend. He died at Venice in 1563, and was honoured with a public funeral. He was a good Greek scholar, and was the first professor at Padua who commented on the works of Hippocrates in the originals. He also translated many of Galen's treatises; and edited in the original Greek the works of Themistius, of Johannes Grammaticus, the Manual of Epiictetus with Arrian's Commentary, Arrian's Alexander's Expedition, Stobaeus, Hefiod, and other Greek writers. A collection of his works has been printed in 2 vols. fol. Haller. Gen. Biog.

TRINCIA, in Botany, Ambros. Phyt. 543.

Camer. Hort. Med. 173. See TRINICA.

TRINCOLI, in Geography, a town of the island of Ceylon, near the E. coast; 84 miles S.E. of Cady. N. lat. 7° 10'. E. long. 82° 6'.

TRINCOMALIEE, or TRINCOMALYEY, a town and harbour of Ceylon, lying in N. lat. 8° 30'. E. long. 8° 34'. The town runs in a N.E. direction along one branch of the bay. The country around it is mountainous and woody; the soil uncultivated and barren; and the whole appearance wild. The woods, which are very thick, contain abundance of wild beasts of various descriptions; particularly wild hogs, buffaloes, and elephants. The latter often come down to the lakes in the neighbourhood of the fort to drink and bathe; and have been frequently shot within a mile of the town. Trincomalies, from its situation and construction, is naturally strong. It occupies more ground than Columbo, but contains a much smaller number of houses, and those inferior in size and appearance to any that are met with in several towns on the S.W. coast. The circumference of Trincomalies, within the walls, is about three miles; within this space is also included a hill, or rising point, immediately over the sea, and covered with a great quantity of thick jungle, in which wild deer and other game find shelter. This rising ground is very little inhabited.

TRI
most of the houses being close to the landing place, which lies in the lowest part. Even the lower parts of the fort were much incumbered with wood till within these few years. The fort is strong, and commands the principal bays, and particularly the entrance into the grand harbour, or inner bay, which affords in all seasons and in every variety of weather a secure shelter to ships of all descriptions, being land-locked on all sides, and sufficiently deep and capacious to receive the largest vessel, or any number of vessels. The whole navy of England might find accommodation in this harbour. Its situation is such, that in other monsoons, ships can arrive at or depart from it, and make their passage good from or to any part of the calmer world, and whole fleets may remain within it, at every season of the year, in perfect security. This harbour is overlooked by fort Oltenburg, a strong fort flanking on a cliff, which projects into the sea; it was originally built by the Portuguese out of the ruins of some celebrated pagodas which once stood here. This fort cannot be attacked by sea, unless the fort of Trincomalee be first taken, and the entrance of the harbour forced. In the bay the waters are so bold, and the water so deep close up to them, that it is almost possible to leap from the rocks into the vessels that moor alongside of them. At the extremity of the rock, on which the fort stands, a strong battery is erected, where the flagstaff of the fort is placed.

This harbour, from its nature and situation, is that which stamps Ceylon one of our most valuable acquisitions in the East Indies. As soon as the violent monsoons commence, every vessel which is caught by them in any other part of the bay of Bengal is obliged immediately to put to sea, to prevent inevitable destruction. At these seafons Trincomalee and Bombay alone, of all the ports on the different coasts of the peninsula of India, are capable of affording a safe retreat. The incautable advantages to be derived from such a harbour are increased by its proximity and easy access to our settlements in the bay of Bengal. A vessel from Madras may arrive here in two days, and can at any time enter the harbour. These circumstances point out Trincomalee as an object of particular attention to our government, and of far more consequence to retain than the whole of the rest of the island. It will, however, require great encouragement and many improvements to render the town populous or anywise equal to Columbo. For the country around is not by any means so fertile as to tempt settlers to reside there; nor are the natural productions calculated to attract commerce. The climate has also been looked upon as the hottest and most unhealthy of the whole island. But the woods and marshes which rendered the climate inaluableous have been already in great measure cleared and drained, and the beneficial effects of these improvements were soon experienced. It is to be hoped that remedies may in the same manner be applied to the other defects under which Trincomalee at present labours: its trade is nothing, as there are no valuable natural productions to nourish it; but, from its situation, it is capable of becoming the richest emporium of the East. The want of commerce, and the uncultivated state of the surrounding country, are defects which flow mutually from each other; and the removal of one would soon, in a great measure, do away the other.

The Malivonga (which fee) falls into the magnificent bay of Trincomalee. (Percival's Ceylon.) This harbour, says Barrow ('Travels in Southern Africa, vol. ii.), is to a maritime province a jewel of inestimable value; it holds the bay of Bengal at its mercy, and affords every facility of overawing and controlling the navigation of the straits of Sunda and Malacca. Our Asiatic possessions, commerce and marine, would consequently lie open to the depredations of the masters of Ceylon. Trincomalee was taken by the British troops in 1705; 70 miles N.E. of Candy.

TRINDELEN, a rock in the Scaggaro, at about equal distances between the coast of North Jutland and the coast of Norway; 7 miles N.N.E. from the island of Leffoe. N. lat. 6° 27'. E. long. 11° 1'.

TRINE, Dimension, or threefold dimension, includes length, breadth, and thickness.

The trine dimension is peculiar to bodies or solids.

TRINE, in Astrology, is the aspect or situation of one star with regard to another, when they are distant 120 degrees.

It is also called trigon, and is usually signified by the character Δ.

TRINE, in Rural Economy, a term applied to the quantities of some sorts of articles, as the fellows and spokes of wheels, which of the former is thirteen, and of the latter twenty-five.

TRINETRA, in Mythology, a name of the Hindoo god Siva. It means with three eyes, similar to Trilokan; which fee.

TRING, in Geography, a small market-town in the hundred of Dacorum, and county of Hertford, England; is situated within a short distance of the Icknield way, 30 miles W. by N. from the county-town, and 31 N.W. by W. from London. The manor was granted by William the Conqueror to Robert, earl of Ewe, but it soon afterwards reverted to the crown; and in the year 1148 was given by king Stephen, with all its appurtenances, to the abbey of Feverham, which he had then founded. His grant was confirmed to the monks by succeeding sovereigns; and Edward II. gave them a charter for a weekly market, and two annual fairs to be held at Tring. After the dilution, Henry VIII. granted the manor to the archbishop of Canterbury: it is now the property of sir Drummond Smith, bart. The parish church of Tring is a spacious, well-proportioned edifice, and consists of a nave, side aisles, and chancel, with a mihrab tower at the west end; the walls are supported by strong buttresses, and the whole is embattled. The nave is separated from the aisles by five pointed arches, rising from high clustered columns. The roof is of timber frame-work, with long beams going across: the supports on each side are terminated by carved figures. Most of the windows have obtuse pointed arches, and are divided into three compartments by mullions. In the interior are various monuments. Tring contains four meeting-houses for Dissenters of different denominations. A Sunday school for about eighty boys and girls has been established by subscription. The market-house is a mean edifice on wooden pillars, having a pillory and a cage beneath. The market is held on Fridays; principally for the sale of corn, meat, and flax-plant: the manufacture of the latter constitutes the employment of most of the females in this part of the country. Five fairs are now held annually. The population of Tring, as ascertained under the act of the year 1811, was 1647, occupying 352 houles.

Tring park, the seat of sir Drummond Smith, bart. consists of between three and four hundred acres, ranging on the S.E. side of the town. The mansion is large and convenient, and the principal apartments are spacious and neatly fitted up. The hall is ornamented with Corinthian pillars. On the floor above the hall, and running across the house, is a gallery or ball-room, with a circular dome in the centre. This house was erected about the time of Charles II. by Henry Guy, eq.

At a short distance N.E. from Tring, is Tring Grove, the

**TRINGA**, Sand-piper, in Ornithology, the name of a distinct genus of birds, of the order of the Grallae; the distinguishing characters of which are, that the beak is roundish, and of the length of the head; the nolkrits linear; and that the feet have four toes, the outmost being generally connected at bottom by a small membrane. The species are numerous, and as follow.

**Pusignax.** With red bill and legs; three lateral tail-feathers unsappend, and face granulated with fleshly papilla. See Ruffe.

**Vanellus.** With red legs, dependent creft, and black break. This is the lapwing or ballad plover of Ray, Willughby, Pennant, &c. See Laping.

**Gallinetta.** With red bill and feet; body varigated with yellow and cinereous; beneath white. This is the totanus ruber of Briffon, the totanus alter of Willughby and Ray, and gambet of Pennant and Latham.

**Interpres.** With red legs; black body, varied with white and ferrugious; and white break and abdomen. This is the arenaria of Briffon, the Hebridal sand-piper of Pennant, the turnstone or sea-dotterel of Ray, Willughby, Latham, &c. See Turnstone.

The **Marinella**, or tringa with red feet, blackish tail-feathers, white at the base, grey body, and black break; or arenaria cinerea of Briffon, is a variety.

**Striata.** With bafe of bill and legs red; tail-feathers white with bands of brown, and many white tail-feathers. This is the totanus striatus of Briffon, and striated sand-piper of Pennant, &c. The totanus maximus of Briffon is a variety.

**Bononensis.** With ochraceous legs; long head and neck; body above black, and beneath white; throat and break marked with ferrugious spots. The greater lapwing of Latham.

**Macularis.** With bafe of bill and legs incarnated; body spotted; eye-brows and double band of the wings white. This is the turdus aquaticus of Briffon, the spotted tringa of Edwards, and the spotted sand-piper of Pennant.

**Lobata.** With pubulate bill, bent at the apex; pin- nated legs, and white undulated break; the grey coot-footed tringa of Edwards, and grey phalarope of Pennant and Latham. Of this there is a variety, white beneath, black above, with yellowish longitudinal streaks; the band of the wings white; and legs lobated.

**Hyperionidea.** With pubulate bill, bent at the apex; pin- nated legs; cinereous break, and sides of the neck ferrugious: the cock coot-footed tringa of Edwards, and grey phalarope of Pennant and Latham. Of this there is a variety, white beneath, black above, with yellowish longitudinal streaks; the band of the wings white; and legs lobated.

**Erythropus.** With red legs, front, rump and tail red and white; the body above and wings cinereous-brown; the abdomen ferrugious: the red-legged sand-piper of Latham.

**Alpina.** Teflaceous-brown, with blackish break; tail-feathers cinereous, whitish; legs brownish.

**Helvetia.** With black bill and legs; beneath black; white vent; tail-feathers white with black bands: the Swiss sand-piper of Pennant.

**Ochropus.** With the apex of the bill pointed; legs greenish; back brown and green; abdomen and outermost tail-feathers white: the cinclus tertius of Alder, Ray, and Will., the ocrphus medius of Gofner, and green sand-piper of Pennant and Latham. Of this there is a variety, viz. Littorea, with smooth bill, cinereous legs, and brown tail-feathers: the shore sand-piper of Pennant; and also another variety, with the back and wings brown, with obfolete whitish spots.

**Hypoleucus.** With smooth bill; livid legs; body cinereous with black streaks; beneath white: the common sand-piper of Ray, Willughby, and Pennant.

**Canus.** With smooth bill; cinereous legs; first tail-feathers forked; and the outer white unsappend. This is the knot of Pennant, &c. See Knot.

**Aleutaria.** With black bill and legs; grey body; under and whole face white; collar grey.

**Fascia.** With bill, vertex, hind part of the head, spot near the eyes, and abdomen black; front and rounded tail white; back cinereous; seven first tail-feathers white.

**Cinclus.** With bill and legs black; collars white; tail and rump grey and brown. This is the leaf nippe of Ray and Sloane, the wagtail of Browne, the fanderling of Albinus, and the purre of Pennant. The cinclus with brown legs is a variety.

**Calidris.** With bill and legs blackish; body beneath olivaceous; and rump variegated: the dusky sand-piper of Latham.

**Pusilla.** With brown bill and legs; body beneath red; outer tail-feathers with a white shaft, and variegated rump; the little sand-piper of Pennant; found in St. Domingo, north of Europe, and rarely in England.

**Glaicola.** With smooth bill; greenish legs; body punctated brown and white; break whitish: the wood sand-piper of Pennant and Latham; found in Sweden.

**Ruficollis.** With black legs; head above and neck variegated with ferrugious and black; and ferrugious throat: the red-necked purre of Latham.

**Squatarola.** With black bill; greenish legs; grey body, beneath whitish; the grey plover of Ray, &c. and grey sand-piper of Pennant and Latham. Of this there is a variety, with black bill and legs; body brown, variegated with white; tail-feathers white with brown bands.

**Islandica.** With brown bill and legs; body beneath ferrugious; secondary tail-feather with a white margin: the red sand-piper of Pennant.

**Cinerea.** Cinereous; beneath white: legs obscurely green; head with black spots; neck obscurely virgated: the ask-coloured sand-piper of Pennant and Latham.

**Atra.** With black head and neck; back and wings brownish, mixed with black; break and abdomen cinereous; rump cinereous, undulated with white and black.

**Novoboracensis.** Obscure, beneath white; break spotted with brown; tail cinereous: New York sand-piper of Pennant and Latham.

**Virgata.** Obscure, beneath white; with yellowish legs; head and neck obscurely striated lengthwise with white: streaked sand-piper of Latham.

**Borealis.** With brown bill and legs; body above cinereous, beneath white; tail and tail-feathers obscure.

**Novo-terræ.** Above black, beneath ash-white; bill, fpiruous wings, tail-feathers, and tail, black; with cinereous legs: Newfoundland sand-piper of Latham.

**Vanigata.** Above variegated with brown, black, and red; front and throat pale; neck and breast streaked with whitish and black longitudinally; abdomen white; bill and legs obscure; variegated sand-piper of Latham.

**Glacialis.** With pinnated yellowish legs; apex of black bill dilated; cheeks and throat ferrugious; body above obscure, beneath white: plain phalarope of Pennant.

**Fusca.** With bill, vertex, and legs pinnated and black; body above brownish and cinereous, beneath white; throat.
cinereus, tinted with red: the cost-footed tringa of Edwards, and brown phalarope of Pennant and Latham.

CANCELLATUS. With upper feathers brown, white at the margin; lower white lined transversely obscurely; pinnated legs obscure.

EUCOPTERA. Black, beneath red, with cinereous bill, green legs, and yellow vent: the white-winged sand-piper of Latham.

MARITIMA. Above varied with grey and white; beneath white, with yellow legs; middle of the back violet: throat and tail obscure: the selsinger sand-piper of Latham.

UNDATA. Obscure, undulated with yellow and white; the rump, the tip of the secondary tail-feathers, and covert, white; tail cinereous, white at the apex: the waved sand-piper of Pennant and Latham.

UNIFORMIS. Wholly dilutely cinereous, with a short black bill: uniform sand-piper of Pennant and Latham.

AUSTRALIS. Above cinereous, spotted brown; beneath reddish; abdomen and rump whitish; tail and tail-feathers obscure; bill and legs black: southern sand-piper of Latham.

NAVIA. With obscure bill; legs greenish; body above cinereous, spotted with red and black; beneath reddish and white, spotted with obscure or bay: the freckled sand-piper of Pennant and Latham.

GRISEA. With black bill and legs; body above grey, beneath white; primary tail-feathers brown; tail grey and white at the margin; a band obscurely grey parallel to the margin: the grizzled sand-piper of Latham.

KEPUSCHICA. With cinereous body; black vertex; abdomen blackish, terminating reddish.

TRINGAN, in Geography. See Thrangano.

TRINGENSTEIN, a town of Germany, in the principality of Nafau Dillenburg: 6 miles E. of Dillenburg.

TRINGLE, in Architecture, a name common to several little square buildings, or ornaments; as reglets, lintels, and platbands.

The word is French, where it signifies the same.

TRINGLE is more particularly used for a little member fixed exactly over every triglyph, under the platband of the architrave; from whence hang down the guttae, or pendant drops.

TRINIDAD, in Geography, a town of South America, in New Granada; 20 miles N.W. of Santa Fé.

TRINIDAD, an island near the coast of South America, about thirty leagues long, and from two to ten broad. This island was discovered by Columbus in his third voyage, who landed here in 1498, and was named by him after the Holy Trinity; because, says Herrera, having been in great danger in a violent storm, he made a vow to give that name to the first land he should find; soon after which a sailor, in the main-top, saw three points of land, by which the name was in every respect suitable to his vow. The original inhabitants were a colony of Arrowsnakes; which fed. The climate is said by some to be unwholesome; the island being very often covered with thick fogs. The abbe Raynal says that it is excellent, being free from hurricanes. Heavy rains fall from the middle of May to the end of October. It is subject to flight earthquakes, and in the interior are four groups of mountains. The quality of its soil is variously reported; however, Sir Walter Raleigh, who was there some time in the year 1595, and examined the island, gives an account, that the northern part of it is high land; but that its soil is good, proper for planting of sugar-canes, tobacco, &c. The southern coast is well adapted to the culture of coffee; and on the west is a large harbour, lucrative in all seasons. Here are several forts of animals, plenty of wild hogs, fish, fowl, and fruit. It also produces maize, cattava, and other roots, and in general all that is commonly found in America. The Spaniards owned to Sir Walter, that they found gold in the rivers of this island, but nothing in comparison of what the main land produces. The natives called this island "Cairi?" but they themselves had different names, according to the different parts of the island where they dwelt. In 1707, it was taken by the British troops; and by the peace of Amiens, the island was ceded to Great Britain. The island of Tobago is separated from Trinidad by a channel called "Trinidad Channel." This island, situated at the caliburn extremity of Terra Firma, from which it is only four leagues distant, is the natural magazine and refort where the contraband traders of Cumanà, Barcelóna, Margarëta, and Guiana, make their purchases. The position of the island is singularly favourable to this commerce. The Spanish coasts, extensive, solitary, defenceless, and to leeward, offer both to the English and Spaniards the greatest facility for perfecting it. The gulf of Paria, which washes the western part of Trinidad, receives the waters of the river Guarapiche, which penetrates the province of Cumanà. By this river animals for labour and for the island are brought from Terra Firma to Trinidad; and through the same channel all the contraband articles consumed in this province can ascend with perfect convenience, or may be landed at several points without the least danger. In general, the cargoes which are defined for Barcelona proceed up this river; they are thence distributed to Caracas and other cities. The mouths of the Oronoko, which crofs the gulf of Paria from south and north, and which are compelled by Trinidad to discharge into the sea by the dragon mouths, open to this island the commerce of Guiana, whither the spurious goods by the river Apure to Barquisimeto, Truxillo, Varnas, Merida, &c Dr. Anderson has given a particular account of a remarkable phenomenon in this island, which is a bituminous lake, or rather plain, denominated Tar-lake, and by the French La Brea, from its resemblance to flint-pitch, and from its aswering a similar imitation. It lies on the leeward side of the island, on a point of land extending into the sea about two miles, and opposite to the high mountains of Paria on the north side of the gulf. The heathland, or cape, is about 50 feet above the level of the sea, and is the greatest elevation on this side of the island. From the sea it appears a mass of black vitrified rocks; but on closer examination, it is found to be a composition of bituminous ferrox, vitrified sand, and earth, cemented together: in some parts, beds of cinders only are found. In approaching this cape, there is a strong sulphurous smell, sometimes disagreeable. This smell is prevalent in many parts of the ground to the distance of eight or ten miles from it. The point of land is about two miles, and falls with a declivity to the sea, the bituminous plain being on the highest part of it, and separated from the sea by a margin of wood which surrounds it. It appears at first like a lake of water; and in hot and dry weather its surface, about an inch deep, is liquid, whence it obtained the appellation of lake. Its form is circular, about three miles in circumference. Its more common confidence and appearance are those of pit-coal, the colour being rather greyer. No appearance of sulphur is discernible, though, in passing over it, a strong sulphurous smell was experienced. Dr. Anderson apprehended that this bituminous substance is the bitumen alpahatum of Linnæus. By a gentle heat it was rendered ductile; and mixed with sawdust or common pitch, it is much used for the bottoms of ships; and he conceives it to be a preservative against the insect called the borer, to destructive
defructive to ships in that part of the world. Every part of the country, he says, to the distance of 30 miles round, has the appearance of being formed by convulsions of nature from subterraneous fires; and the whole island, he thinks, is formed of an argillaceous earth, either in its primitive state, or under its different metamorphoses. This argillaceous earth is formed, as he conceives, from the sediment of the ocean, and its formation is easily accounted for from the situation of Trinidad. The great influx of currents into the gulf of Paria, from the coasts of Brazil and Andalusia, must bring down a vast quantity of light earthy particles from the mouths of the numerous large rivers which traverse those parts of the continent; but the currents being repelled by the sides of adjacent mountains, eddies and smooth water will be produced when they meet and oppose one another; and, therefore, the earthy particles would subside, and form banks of mud, and by the accretion of fresh accumulations form dry land; and thus a tract of country as Trinidad must be formed. The cauces still operate, for the island is daily increasing on the leeward side, as is visible in the mud-beds that extend a great way into the gulf, and are there constantly augmented. But from the great influx from the ocean at the south end of the island, and its egress to the Atlantic again through the Bocas, a channel must ever exist between the continent and Trinidad. N. lat. 9° 48' to 10° 42'. W. long. 60° 6' to 61° 36'.

Trinidad, La, a town of South America, in the province of Moxes; 200 miles N. of La Plata. S. lat. 14° 40'. W. long. 65° 59'.

Trinidad, a sea-port town of the island of Cuba; situated in a bay on the south coast of the Havannah. N. lat. 51° 56'. W. long. 90° 18'.

Trinidad, La, or Sanfornates, a sea-port town of Mexico, in the province of Guatimala; 80 miles E.S.E. of Guatimala. N. lat. 14° 31'. W. long. 91° 6'.

Trinidad, La, a town of Mexico, in the province of Veragua, on a river which runs into the gulf of Mexico; 18 miles S.E. of La Concepcion.

Trinidad, La, a town of Mexico, in the province of Nicaragua, on the east coast of Nicaragua lake; 30 miles N.W. of St. Carlos.

Trinidad, a town of South America, in the province of Paraguay; 170 miles S.E. of Asfumpton.

Trinidad, a small island in the South Atlantic ocean, and one of those called "Martin Vaz's Islands," taken possession of by the Portuguefe about the year 1783, who keep a small garrison there, but, according to M. Peroune, ill-furnished. This island presents nothing to the eye but a rock, almost entirely sterile. A little verdure, and a few shrubs, are alone to be seen in the narrow pafsages between the mountains. It is in one of these valleys situated in the south-east quarter of the island, and about three hundred toftes wide, that the Portuguefe have formed their habitation. Nature certainly did not intend this rock to be inhabited: neither men nor animals being able to find a sufficiency upon it; but the Portuguefe were afraid lest some European nation should avail themselves of the vicinage, and carry on a contraband trade with the Brafsils. S. lat. 20° 31'. W. long. of the south point 26° 37'.

Trinidad Bay, a small open bay or cove on the west coast of North America. N. lat. 41° 3'. E. long. 236° 6'.

Trinitarians, a term used very variously, and arbitrarily: frequently it flands as a common name for all perfons who have sentiments on the mystery of the Trinity, different from those of the Catholic church.

Sometimes it is more immediately restrained to some one or other particular class of such perfons.

It is now applied to the orthodox themselves, in contradiflion to the others who are then called Arian or Unitarians, or who deny or impugn the doctrine of the Trinity.

Thus the Socinians and others called the Athanafrians, Trinitarians.

The Trinitarians of the present age, and especially those who, in England, have written on the subject of the Trinity, are far from being agreed in their opinions, and, therefore, ought to be called very differently from one another.

A late writer (Prieftley's Hist. Corrupt. of Chriftianity, vol. i. p. 147.) thinks that they are all reducible to two classes, viz. that of thofe who believe that there is no proper divinity in Chrift, besides that of the Father, and the class of Trinitifts, who maintain that there are three equal and difinct Gods. Dr. Waterland and the reft of the Athanafrians afert three proper difinct perfons, entirely equal to and independent upon each other, yet making up one and the fame being. Mr. Howe (Works, vol. ii. p. 566—568,) feme to fuppofe that there are three difinct eternal精神s, or difinct diftant hypofpheres; each having his own diftinct, fingular, intelligent nature, united in fuch an inexplicable manner, as that upon account of their perfect harmony, content, and affection, to which he adds their mutuell self-confcioufnefs, they may be called the one God, as properly as the different corporeal, fensitive, and intellectual natures united may be called one man. Bishop Pearson (on the Creed, p. 134, &c. 322, &c.), bishop Bull (Serm. vol. iv. p. 829.), and Dr. Owen (on the Heb. i. 5. p. 53, &c.), are of opinion, that though God the Father is the fountain of the Deity, the whole divine nature is communicated from the Father to the Son, and from both to the Spirit; yet so as that the Father and Son are not separate, or separable from the divinity, but do fill exist in it, and are most intimately united to it. Dr. Thomas Burnet (Script. Doctr. p. 173,) maintains one self-exifient and two dependent beings; but afferts, that the two latter are so united to and inhabited by the former, that by virtue of that union divine perfections may be ascribed and divine worship paid to them. In this fentence Dr. Dodridge is faid to have concurred. Dr. Wallis (Lett. on the Trin.) thought, that the diftinftion between the three perfons was only modal, which feems, fays Dr. Dodridge, to have been the opinion of archbifhop Tillotfon. (Tillotfon. Serm. vol. i. p. 492—494.) Dr. Watts (Diff. N° 7.) maintained one supreme God dwelling in the human nature of Chrift, which he fuppofed to have exifted the firit of all creatures; and speaks of the divine Logos, as the wisdom of God, and the Holy Spirit, as the divine power, or the influence and effect of it; which, he fays, is a perifhal perfon, i. e. spoken of figuratively in trinitie under perfonal characters. Dodridge's Lectures, p. 422, &c.

Trinitarians also denote an order of religious, instituted in honour of the Trinity, for the redeeming of Christian captives from the infidels; vulgarly called Mathurins, and brothers of the redemption.

They are clothed in white, and bear on the fhamach a cros, partly red and partly blue; by which three colours, white, red, and blue, is imprefled to be represented the mystery of the Trinity; but the habit of this order is different in different provinces.

The Trinitarians made it their bufinefs to go and ransom Christians held in slavery in the republics of Algiers, Tunis and Tripoli, and the states of Morocco. They have a rule peculiar to themselves; though several historians rank them among the observers of the value of St. Augufline.

The
TRI

T he order had its rise in 1198, under the pontificate of Innocent III. The founders were John de Matha and Felix de Valois; the first of Tournon in Provence; the second, not of the royal family of Valois, as some have imagined, but thus called, in all probability, as being a native of the country Valois.

Gauthier de Chartillon was the first who gave them a place in his lands to build a convent; and afterwards became the chief of the whole order: Honorius III. confirmed their rule; and Urban IV. appointed the bishop of Paris and others to reform them; they did it; and the reform was approved, in 1267, by Clement IV.

This order possessed about 250 convents, divided into thirteen provinces; of which six are in France, three in Spain, one in Italy, and one in Portugal. And formerly there was one in England, another in Scotland, and a third in Ireland.

Broughton, and some other writers, make a distinction between the order of the redemption of captives, and the fraternity of the Holy Trinity.

TRINITARIANS, Barefooted, are a reform of this order, made in Spain, in a general chapter held in 1594, where it was resolved, that each province should establish two or three houses, where the primitive rule should be observed, and where the religious should live up to a greater austerity, use coarser clothes, &c. and yet should have the liberty of returning to their ancient convent, when they thought fit.

Don Álvaro de Bazan, intending to found a monastery at Valdpegnas, and defiring to have it occupied by bare-footed religious, it was agreed to add nudity of feet to the reform, that the Trinitarians might have the benefit of that establishment. The reform afterwards grew into three provinces, and was at length introduced into Poland and Ruffia, and thence into Germany and Italy.

There are also barefooted Trinitarians in France, established by F. Jerome Hallies, who, being sent to Rome to solicit the first reform mentioned above, not content with this, carried it farther, and obtained a permission of pope Gregory, to add a coarser habit and nudity of feet thereto. He began with the convent of St. Dionysius at Rome, and those of Aix in Provence.

In 1675, there were houses enough of this reform to make a province, and, accordingly, they held their first general chapter the same year.

There are also nuns of the Trinitarian order established in Spain by St. John de Matha himslef, who built them a convent in 1201. Those who first took the habit were only oblates, and made no vows; but in 1201, the monastery was filled with real religious, under the direction of the infanta Constanza, daughter of Peter II. king of Aragon, who was the first religious, and the first superior of the order.

There are also barefooted nuns of this order, established at Madrid about the year 1612, by Frances de Romeros, daughter of Julian de Romero, a lieutenant-general in the Spanish army.

Lastly, there is a third order of Trinitarians.

TRI

The is one God, an unity in nature and essence, and a Trinity of perfons. The term Trinity implies the unity of three, the unity of three divine perfons really different, and the identity of an indivisible nature: the Trinity is a ternary of divine perfons of the same essence, nature, and subsistence.

Perfon is defined an individual, reasonable, or intellectual subsistence; or an intellectual and incommunicable subsistence.

The hypostasis, or subsistence, is what constitutes the perfon. There are then in the Holy Trinity three perfons, Father, Son, and Holy Spirit, which have all things in common, except their relations; whence that axion in theology comes to have place, in the divine perfons there is no distinction, where there is no opposition of relation.

The Father is the first perfon in the Holy Trinity, for the reason the Father alone produces the Word, by the way: underflanding; and with the Word produces the Holy Spirit, by way of will.

Here it is to be observed, that the Holy Spirit is not thus called from his spirituality, that being common and essential to all the three perfons; but from the passive spiration (as some popish schoolmen express the manner in which the personality of the Holy Spirit is derived from the Father and Son), which is peculiar to him alone.

Add, that when one perfon in the Holy Trinity is called frist, another second, and another third, it must not be understood of a priority of time, or of nature, which would imply some dependence; but of a priority of origin and emanation, which consists in this, that one perfon produces the other, in such manner, as that the perfon which produces cannot be, or be conceived, without that produced.

Those who maintain the doctrine of the Trinity allege, that the same titles, attributes, works, and worship, are ascribed by the sacred writers to the Father, Son, and Holy Spirit; nevertheless they contend, in different ways, for the proper unity of the divine nature. For the sentiments of some of the chief modern Trinitarians, see TRINITARIANS: and for the sentiments of others, who have rejected what has been usually denominated the orthodox doctrine of the Trinity, see ARIANS, MACEDONIANS, NOETIANS, SABELLIANS, SEMI-ARIANS, SOCINIANS, and UNITARIANS. See also TRINITYISM.

It is observed by Dr. Waterland and many other writers, that the term Trinity first occurs in the works of Theophilus, bishop of Antioch, about the year 180. Theoph. ad Autoly. lib. ii. c. 14. p. 148. 150. ed. Wolfi.

But at this time the words, perfons, and subsistences, were not in use; however, they were introdiced on occasion of the disputes with Praxedis, Noetus, and Sabellius, either by Clement of Alexandria, or by Tertullian.

For the punishment inflicted by the English law on those who deny the Trinity, see HERESY.

Many of the heathens are said to have had a notion of a Trinity. Steueh. Eugub. de Peren. Philof. lib. i. c. 3. observes, that there is nothing in all theology more deeply grounded, or more generally allowed by them, than the mystery of the Trinity. The Chaldeans, Phænicians, Greeks, and Romans, both in their writings, and their oracles, acknowledged that the Supreme Being had begot another Being from all eternity, which they sometimes called the Son of God, sometimes the Word, sometimes the Mind, and sometimes the Wisdom of God, and ascribed it to be the creator of all things.

Among the sayings of the Magi, the defendants of Zoroaster, this is one, Πατὴρ ἐξετάζει πόστε καίνο, μεγάλη δύναμις: the Father finished all things, and delivered them to the second Mind.
The Egyptians called their Trinity, Hemapha, and represented it by a globe, a serpent, and a wing, diptyped into one hieroglyphic symbol. Kircher, Gale, &c. suppose the Egyptians learned their doctrine of the Trinity from Joseph and the Hebrews.

The philosophers, among St. Cyril, owned three hypophyses, or perfons; they have extended their divinity to three persons, and even sometimes used the word Trias, Trinity: they wanted nothing but to admit the confubstantiality of the three hypophyses, to signify the unity of the divine nature, in exclusion of all trinity with regard to difference of nature; and not to hold it necessary to conceive any inferiority of hypophyses.

We learn from Dr. Cudworth, that, besides the inferior gods, generally received by all the Pagans, (viz. animated stars, demons, and heroes,) the more refined of them, who accounted not the world the supreme deity, acknowledged a Trinity of divine hypophyses superior to them all. This doctrine, according to Plotinus, is very ancient, and ob.

Plato, and some of his followers, speak of a Trinity in such terms, that the primitive fathers have been accused of borrowing the very doctrine from the Platonic school; but M. Mourgues, who has examined the point, affrets, that nothing can be more absurd, than to suppose the Platonic Trinity brought into the church; and to have recourse to the Platonism of the fathers to disprove their authority with regard to this dogma.

PLATO.

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TRINITY, Friary or Fraternity of the Holy, is a society instituted at Rome, by St. Philip Neri, in 1548, to take care of pilgrims coming from all parts of the world to that capital, to visit the tombs of St. Peter and St. Paul.

In 1558, pope Paul IV. gave the fraternity the church of St. Benedict, to which they gave the title of the Holy Trinity. Since that time, they have built close by it a very ample hospital for pilgrims, and persons on the recovery.

The fraternity has since become very considerable, and most of the nobility of Rome, of either sex, have done it the honour to be members of it.

TRINITY, Congregation of the Holy, is a congregation of twelve priests established in the hospital of the fraternity just mentioned, to take care of pilgrims, and others entertained therein.

TRINITY, Order of the Holy, See TRINITARIANS.

TRINITY-Sunday, is the next Sunday after Whit-Sunday, thus called, because on that day was anciently held a festival (as it still continues to be in the Roman church) in honour of the Holy Trinity. The observance of this festival was first enjoined by the fifth canon of the council of Arles, in 1260; and John XXII. who distingushed himself so much by his opinion concerning the beatific vision, is said to have fixed the office for this festival in 1334.

TRINITY-Herb, in Botany. See VIOLET.

TRINITY-House, is a kind of college at Deptford, belonging to a society of seafaring persons, founded for the regulation of seamen, and security and convenience of ships and mariners on our coasts.

This society was incorporated by Henry VIII. in 1515, who confirmed to them not only all the ancient rights and privileges of the mariners of England, but also their several hospitals; which, together with various grants of queen Elizabeth and king Charles II., were confirmed by letters patent of the 11th of James II. in 1685; under the name of the master, wardens, and affilliates of the guild or fraternity of the most glorious and undivided Trinity, and of St. Clement, in the parish of Deptford Strand, in the county of Kent.

This corporation is governed by a master, four wardens, eight affilliates, and eighteen elder brethren; the inferior members of the fraternity, denominated younger brethren, and chofen among the masters and mates expert in navigation, are of an unlimited number, and serve for supplying vacancies among the thirty-one elder brethren. The master, &c. of this corporation, are invited by charter with a power to examine the mathematical children of Chrift's Hospital; to examine the masters of his majesty's ships; to appoint pilots for conducting ships in and out of the river Thames; and to amerce such as shall act as masters or pilots without their approbation in a fine of 20l.; to settle the several rates of pilottage, and erect light-houses, and other sea-marks, on the several coasts of the kingdom, for the security of navigation; to prevent aliens from serving on board English ships, without their licence, under penalty of 5l. for each offence; to punish feamen for defertion or mutiny in the merchant service; to hear and determine the complaints of officers and seamen in this service, under an appeal to the court of admiralty; and to grant licences to poor seamen (non-free men) to row on the river Thames.

To this company belongs the ballast-office, for cleaning and deepening the river Thames, by taking from it a sufficient quantity of ballast for the supply of all ships that fall out of the river; in which service sixty barges, of the burden of thirty tons, and two men each, are constantly employed; all ships taking in ballast pay to them 1s. 2d. a ton.

This corporation is empowered by charter to purchase lands, &c. to the amount of 500l. per annum, and also to receive charitable benefactions to the like amount. They have also light-houses, to which all ships pay a halfpenny per ton.

Out of the income of this corporation, about three thousand poor seamen, their widows and orphans, are annually relieved, at the expense of about 6000l.

The house in which the brethren of this corporation usually meet for the dispatch of business, is on Tower-Hill. (See LONDON.) They have three hospitals, two at Deptford, and one at Mile-End, which last is designed for decayed sea-officers, masters of vessels, pilots, and their widows.

TRINITY Term. See Term.

TRINITY, or La Trinité, in Geography, a sea-port town of the island of Martinique: the harbour is formed on the south-east fide by the point Caravelle, which is two leagues in length; and on the other fide by a very high hill, about 350 or 400 paces in length, which only joins to the main land by an illusmus not above 200 feet broad. The ead side, opposite to the bottom of this bay, is rapped up by a chain of rocks, which appear level with the water when the ebb tide is spent. The town here is a very thriving place, being the residence of several merchants, as well as of the lieutenant-governor of the Cabesterre; and much frequented by shipping, especially from Nantes; the cargoes of which are here to meet with a quick sale, the people, who
who are very numerous in the adjacent parts, choosing rather to buy what they want near at hand, than to fend far from the Buffon. Besides, during the hurricane season, ships have a safe station in this port: another advantage they have here is, that when they set out for Europe, they are to the windward of all the islands, and have about 500 leagues in their passage, which they would find by the way of St. Domingo, or Porto Rico. N. lat. 14° 53'. W. long. 61° 51'.

TRINITY Bay, a large but not a very deep bay of the South Pacific ocean, on the north-east coast of New Holland, between Cape Grafton and Cape Tribulation.—Also, a large bay on the east coast of Newfoundland. N. lat. 48°. W. long. 53° 10'.

TRINITY Harbour, a cove on the north-west end of Trinity Bay, on the east coast of Newfoundland. N. lat. 48°. W. long. 53° 10'.

TRINITY Inlet, a bay of the North Pacific ocean, on the west coast of North America; 30 miles S. of Queen Charlotte's Sound.

TRINITY Island, an island in the North Pacific ocean, discovered by Captain Cook. Captain Vancouver passed this coast in the year 1794, and says it appeared to be divided into two islands, with several others of inferior size lying to the north, between them and the land about Cape Trinity. The east point of the easternmost is, according to his observations, situated in N. lat. 56° 33'. E. long. 206° 47'.

TRINIUMGELD, or TRINIUMGELD, a compensation used among our Saxon ancestors for great crimes, which were not abated but by paying a fine thrice nine times. See GELD.

TRINK, in our Statutes, is used for a fishing-net. 2 Hen. VI. cap. 15. Blount.

TRINO, in Geography, a town of France, in the department of the Seine, lately belonging to the duchy of Montferrat, situated in a marshy foil: the country near produces great quantities of corn, rice, and cheese, by some supposed equal to those of Picenza or Parma. The fortifications are for the most part demolished. It has one collegiate and several parish churches, and religious houses; 10 miles S.S.W. of Vereille. N. lat. 45° 17'. E. long. 8° 16'.

TRINOBANTES, TRINOVANTES, or TRINOVATES, in Ancient Geography, were inhabitants of Britain, situated next to the Cantii northward, and occupied, according to Camden and Baxter, that country which now composes the counties of Essex and Middlesex, and some part of Surrey. But if Ptolemy be not mistaken, their territories were not so extensive in his time, as London did not then belong to them. The name of this British nation seems to be derived from the three following British words; Tri, Now, Hunt, which signify the inhabitants of the new city. This name was perhaps given them by their neighbours, on account of their having newly come from the continent into Britain, and having there founded a city called Tri-Now, or the New City, the most ancient name of the renowned metropolis of Britain. The Trinobantes had come so lately from Belgium, that they seem hardly to have been firmly established in Britain, at the time of the first Roman invasion. For their new city, which soon after became so famous, was then so inconsiderable, that it is not mentioned by Caesar, though he must have been within sight of the place where it was situated. They were then at war with their neighbours, the Cattivellantes, whose king, Caffibelenus, commanded the confederated Britons against the Romans; and, on this account, the Trinobantes were amongst the first of the British states who defected that confedecary and submitted to Caesar. They submitted again to the Romans, on their next invasion in the reign of Claudius, with the same facility, and almost for the same reason. For, in the interval between the invasion of Julius and that of Claudius, the Cattivellauni had reduced them under their obedience; and, in order to emancipate themselves from this subjection to their neighbours, they put themselves under the protection of the Romans. But the Trinobantes soon became weary of their obedience to their new masters. For the Roman colony at Camulodunum, which was within their territories, depriving some of them of their estates, and oppressing them several other ways, they joined in the great revolt of the Britons under Boadicea, and shared very deeply in the miseries of that revolt. From that time the Trinobantes remained in peaceable subjection to the Romans, as long as they continued in Britain. The country of the Trinobantes was greatly valued and much frequented by the Romans, on account of the excellency of its soil and climate, and the many advantages of its situation. That sagacious people soon fixed their eyes on the new town of the Trinobantes; and observing its admirable situation for health, for pleasure, and for trade, great numbers of them settled in it, and giving it the name of Londonum from its situation, and of Augella from its grandeur, it became in a little time the largest and most opulent city in this island. In the reign of Nero, as Tacitus informs us, London was become a city highly famous for the great influx of merchants, her extensive commerce, and plenty of all things. No fewer than seven of the fourteen journies of Antoninus begin or end at London; a plain proof, among many others, that this city was the capital of Britain in the Roman times, as it is at present the great and flourishing metropolis of the British empire. Camulodunum, now Malden in Essex, was the seat of the first Roman colony in Britain, and a place of great beauty and magnificence in those times; though at present few or no vestiges of its ancient grandeur remain. Cæfaromagus, from its pompous name, was probably a place of some note in the Roman times; but it is now so entirely ruined, that it is difficult to discover the ground where it once stood; some of our antiquaries placing it at Chelmsford, and others at Dunmow. The Colonia of Antoninus was probably Colcheather, and Durolitum, as some think, Leiton, but, according to others, Waltham. But though the county of Essex was certainly very much frequented by the Romans, who erected many noble works in it, yet time, cultivation, and various accidents, have made so great a change in the face of that country, that very few vestiges of these works are now remaining. The territories of the Trinobantes were included in that Roman province which was called Britannia Prima. See CAMULODUNUM.

TRINODA NECESITAS, in our Ancient Customs, a threefold necessary tax, to which all lands are liable; vis, expeditio, & reparatio pontis, & arcis; going to the wars, and repairing of bridges and of castles.

These were the three exceptions anciently inflected in the king's grants of land to the church, after the words that freed them from all secular service.

TRINODA, or TRINODA TERRA, in some Ancient Writers, denotes a quantity of land containing three perches.

TRINOMALY, or TRINOMIAL Root, in Mathematics, is a root consisting of three parts, or monomes, connected together by the signs + or —. Such
This afpect, which some call the *sfqivquadrans*, is one of the new aspects superadded to the old ones by Kepler. 

**TRIODIA**, in *Botany*, from τρίς, τρία, three, and οὐδός, a tooth, alluding to the three, nearly equal, teeth, of the outer valve of the corolla.—Brown Prodr. Nov. Holl. v. 1. 182. 


Eff. Ch. Calyx many-flowered, of two nearly equal valves. Outer valve of the corolla with three, nearly equal, teeth; the middle one large. Nectary of two scales. 

A genus of perennial, rather rigid graminaceous plants, with panicles of flowers, and the habit of a Poa or *Fusca*. Mr. Brown specifies *Fusca* decumbens of Linnæus, which is *Poa decumbens* of Sm. Fl. Brit., *Dantonia decumbens* of Decandolle, ought to be removed hither. Our learned friend also has hinted to us, that the two South American species of Humboldt and Bonpland, here subjoined to his own New Holland ones, though they answer to the generic character, are considerably different in appearance from the rest. 

1. T. *pungens*. Br. n. 1.—"Panicle rather close, erect; with alternate, mostly simple, branches. Spikelets lanceolate, of about five flowers. Outer valve of the corolla woolly at the edges and keel, in its lower half. Leaves spreading, involute, pungent; scales of the lower ones vilose."—Found by Mr. Brown, in the tropical part of New Holland. 

2. T. *procera*. Br. n. 2.—"Panicle loose; its branches undivided, spiky. Spikelets somewhat flaked, of three or four flowers. Calyx roughish. Outer valve of the corolla very smooth at the keel, and nearly so at the edges. Leaves involute, rather lax; their sheath with a silky beard."—From the same country. 

3. T. *pavufora*. Br. n. 3.—"Panicle loose, elongated; its branches undivided, spiky. Spikelets linear, of about five flowers. Outer valve of the corolla naked at the keel; rather downy at the edges. Leaves involute, rather lax. Stipula torn."—From the same country. 

4. T. *microphylla*. Br. n. 4.—"Panicle elongated, rather close; its branches undivided, spiky. Spikelets about three-flowered. Glumes rough. Outer valve of the corolla blunt, with three very short teeth; its keel and edges smooth. Leaves involute; their sheath bearded."—From the same country as the three foregoing. 

5. T. *argentea*. Br. n. 5.—"Panicle close. Spikelets lanceolate, imbricated. Outer valve of the corolla villous at the base. Leaves involute, spreading, rigid, pungent."—Native of the southern coast of New Holland. 

6. T. *ambigua*. Br. n. 6.—"Panicle lax; its branches half-whorled, undivided, spiky. Spikelets nearly sessile, linear of eight or ten flowers. Outer valve of the corolla silky at the edges; inner fringed. Leaves involute. Stipula torn."—Found in the tropical part of New Holland, by Mr. Brown, who doubts whether this be a genuine species of *Triodia*. Its aspect is perfectly that of a *Poa*. 

7. T. *pullerata*. Kunth as above, n. 1. 47.—Panicle leafy, of about three flowers. Spikelets about seven-flowered. Corolla hairy at the base; its inner valve toothed. Scyons trailing. Leaves rather long.—Native of cool dry exposed situations in Mexico, flowering in September. Root fibrous, with trailing runners, taking root as they go, and sending up stems two or three inches high, solitary or aggregate, whole simple *panicle* accompanied by many awl-shaped leaves, resembling the radical foliage. 

8. T. *avenacea*. Kunth n. 2. 48.—Panicle close. Spikelets about five-flowered. Corolla hairy in its lower half; inner valve entire. Scyons trailing. Leaves flabby.—Native of valleys in Mexico, flowering in April. This increases by runners, like the last. But the stems are twice as tall; the *panicle* leafless, rather compound, resembling a *Fusca*; the leaves flat, blunting, not unlike *Poa annua*. 

**TRIODION**, the title of an ecclesiastical book in the Greek church, which comprehends the office of a particular part of the year. This book is called Triodion, because it contains the hymns or odes of three lrophees. The hymn of two lrophees is called "Dionysion," and that of four, "Tetradion." Leo Allatius. 

**TRIOLO**, in *Geography*, a town of the Ligurian republic; 18 miles N.E. of Vintimiglia. 

**TRIOND**, a town of European Turkey, in Albania; 12 miles W.N.W. of Alexio. 

TRIONDA, a small island in the gulf of Salata, near the coast of Natolia. N. lat. 36° 36'. E. long. 36° 26'. 

TRIONES, in *Astronomy*, a sort of constellation, or assemblage of seven stars in the Ursa Major, popularly called "Charles's Wain." 

From the Septem Triones, the north pole takes the denomination Septentrion. 

**TRIONTO**, in *Geography*, a river of Naples, which runs into the gulf of Tarento; 10 miles E. of Rossano. 

Alfo, a cape of Italy, on the coast of Calabria Citera, in the gulf of Tarento, at the mouth of the Trionto. N. lat. 39° 46'. E. long. 16° 54'. 

**TRIONUM**, in *Botany*. (See *Hippopus*.) There is a *Trionum* in Thespiaus, said to be one of the Mallow tribe; like the *Hippopus* in question, whose leaves, having three lobes, are supposed to function the present application of this name. 

**TRIOPHTHALMUS**, formed of τρίς, three, and οὖν, or, a name given by authors to such pieces of agate, or other semi-polished flint, as happen to have three small circular spots, resembling eyes, upon them; these are of the nature of the common agate, &c. The spots are mere accidental varieties in the dispositions of the veins, and do not make a distinct species of stone. 

**TRIOPICUS**, in *Ancient Geography*, a country or town, or, as others say, a promontory of Caria, near the sea, and belonging to the Cnidians. On this promontory was a temple of Apollo, where the Dorians celebrated games in honour of this god. At this temple was held an assembly of the Dorians of Alba, similar to the assemblies of the European Greeks at Thermopylae. See Cape Cito. 

O.D. **TRIOP**.


Eff. Ch. Calyx in five deep segments. Petals five, roundifh, with flemier claws. Filaments combined at the base. Capsules three, fingle-fed, each with one, three, or four, membranous wings.


A twining shrub, with small white flowers. Fruit with three vertical parallel wings, each capsule being fixed in the centre of each.


7. T. buxifolia. Box-leaved Triple-wing. Willd. n. 7. (Tetrapetris buxifolia; Cavan. Diff. n. 597. t. 262. f. 3.)—Leaves elliptic-oblanceolate, blufht, smooth. Umbels foliary, terminal. Capsules with four nearly equal wings.—Native of the Antilles. The leaves are much smaller than one of the foregoing, being hardly above an inch long, and nearly fefilif.

8. T. citrifolia. Orange-leaved Triple-wing. Swartz Ind. Occ. 857. Willd. n. 8. (Tetrapetris inequaflis; Cavan. Diff. n. 594. t. 260. Acer scandens tricoccos, folia citri, flore luteo, minore; Plum. t. 9. t. 16.)—Leaves ovate, acute, smooth. Umbels axillary, flaked. Capsules with four wings; the two lowermost smallifet.—Native of woods on the mountains of Jamaica. The fhruflby stem climbs to a great height, with very long, round, flexible, smooth branches. Leaves flaked, three or four inches long, flexible, with several lateral ribs. Flowers small, yellow, in axillary and terminal flamed umbels.

Dr. Swartz very justly observes, that the Tetrapetris of Cavanilles is no difficnt genus from Triopteris. Our second fpecies, having but three wings to the whole aggregate fruit, or a fimple circumambient wing to each capsule, may be thought to anwer ill to the idea of this genus.

Triopteris, in Gardening, furnifhes a plant of the climbing woody exotic fove kind from the West Indies, of which the fpecies cultivated is the Jamaica triopteris (T. jamaicensis).

It is a tender exotic plant, which constantly requires the protection and warmth of a greenhoufe or fove in this climate.

Method of Culture.—This plant is propagated and increased by feeda, cuttings of the branches, and layers. In striking roots, the cuttings will be greatly afifted by the use of a hot-bed of tanners' bark. The plants, after they are raised, are always to be kept in pots, which are to be placed amongst thofe of the greenhoufe or fove kinds. They should have occasional waterings during hot weather.

They afford a defirable variety in collections of the above kinds of plants.

TRIORCHIS, a word used by fome to exprefs a man who has three feficles.

It is also used as the name of a buzzard; and of a plant, called ladies' traces.

TRIORS, or TRIERS, in Law, fuch as are chosen by the court to examine whether a challenge made to the panel of jurors, or any of them, be juft or not.

The triors, in cafe the firft man called be challenged, are two indifferent perffons named by the court; and if they try one man and find him indifferent, he fhall be fworm; and then he and the two triors fhall try the next; and when another is found indifferent and fworm, the two triors fhall be fuperceded, and the two fworm on the jury fhall try the ref.


Gen. Ch. Cal. Perianth superior, in five deep, spreading, lanceolate, permanent segments, the length of the corolla. Cor. of one petal, tubular; limb shorter than the tube, in five deep, crest, rounded lobes, the lower ones smallifet. Stam. Filaments five, thread-shaped, the length of the corolla, and inferted into its tube; anthers oblong. Pfif. Germin inferior, roundifh; fiyle cylindrical, the length of the flaments; stigma thickifh. Peric. Berry obovate, bluntifh triangular, of three cells. Seeds foltary, bony, bluntifh triangular, obtufe, furrowed.

Eff. Ch. Corolla of one petal, scarcely longer than the calyx, nearly regular. Calyx in five deep segments. Berry inferior, of three cells, with foliary feeda.

TRI

Pl. 250. Willd. n. 1. Ait. n. 1. Pursh n. 1. (Tri- 
toepfernum latiore folio, flore rutilo; Dill. Ethis. 394. 
t. 293.)—Leaves oblong, combined. Flowers sessile, 
whorled.—In rich rocky grounds, principally on a lime-
stone soil, from New England to Carolina, but rare. Pe-
rennial, flowering from June to August. Flowers and berries 
dark purple. Pursh. A hardy perennial, sometimes ferned 
in our more curious botanic gardens. The stem is two feet 
high, erect, round, hairy or downy, like the rest of the 
herbage, and bearing several pairs of connate, oblong, acute, 
etire leaves, three or four inches long, spreading widely, 
and crossing each other. Flowers downy, many in each 
whorl.

Sp. Pl. 250. Willd. n. 2. Ait. n. 2. Pursh n. 2. (Pe-
ricymenum herbaceum rectum virginianum; Pluk. Phyt. 
t. 104. f. 2.)—Leaves elliptic-lanceolate, slightly combined. 
Flowers axillary, solitary.—On the borders of woods, in 
a sandy soil, in Virginia and Carolina. Perennial, flowering 
in June and July. Flowers and berries yellow.

TRIPETALOIDÆ, in Botany, the 5th order among 
the Fragmenta of Linnaeus, consists of Junci, Aphyllanthes, 
Triplax, Scheuchzeria, Elegia and Rhypho in one section; 
then Flaggellaria, Calotus, Butomus, Atisnas and Sagittaria. 
Linnaeus has hinted, in a manuscript note, that the three 
fragments, or perhaps, probably to be removed to a order near 
the Palma, or a subdivision thereof. The name alludes to 
the three petals, for so we must call them, though Linnaeus, 
like the French botanists, has spoken of them, sometimes, 
as petal-like leaves of the calyx.

TRIPETALOUS FLOWERS, in Botany, such which 
consist of three leaves, which are called petals, to distingui 
h these from the leaves of plants.

TRIPETTY, in Geography, a town of Hindooftan, in 
the Carnatic, where was a celebrated pagoda, reported to 
by vast crowds of pilgrims from all parts of Hindooftan; 
49 miles S.S.W. of Nellore. N. lat. 13° 45'. E. long. 
79° 30'.

TRIPHACA, in Botany, was so named by Lourievo, 
from τρίς, three, and φακός, a lentic, or, as he takes the 
liberty of saying, a legume, in allusion to the three leguminous 
seed-vessels.—Lourievo, Cochinch. 577.—Clafs and order, 
Mamia Polyandra.

This is a large tree, found on the eastern coast of Africa. 
Mr. Brown has suggested to us that it is undoubtedly a 
Sterculia; fee that article. In species it seems to come 
neat S. Balangas and its allies. The number of the 
folios doublets varies.

TRIPHARMACUM, an ointment in the late London 
Difpenfatory, so called from its being composed of three 
ingredients: the prescription is this: Take common plaster 
four ounces; oil olive two ounces; vinegar one ounce; let 
them over a gentle fire, and firit them continually till they 
become an ointment.

TRIPHASIA, in Botany, fo named by Lourievo, 
Cochinch. 152, (omitted in his index,) from τρίς, three, 
triply-pinnate, because of the three leaves, petals, and calyx-teeth, 
proves, by his fpecimens at Sir Joseph Bank's, to be no 
other than Linnaia tripliciata of Linneus.

TRIPHOLINUS Monx, in Ancient Geography, a moun-
tain of Italy, in Campania. Pliny speaks of the vines which 
grew upon the mountain, and calls the territory which pro-
tuced them Trippholimus ager. These vines are also mentioned 

TRIPHTHONGUE, in Grammar, an affemblage, or 
concoufse, of three vowels in the fame syllable; as in quaë. 
Quintilian, lib. i. cap. 6. denies the exifence of triph-
thongues; and afferts, that there never was any syllable of 
three vowels, but that one of them was always turned into 
a consonant: Scipio afferts the contrary. However 
this may be in the Latin and Greek, which were the only 
languages Quintilian understood, it is certain there are 
several languages in Europe where triphthongues are in ufe.

TRIPHYLLA, in Ancient Geography, a country of the 
Peleponnefus, in the Elide. Strabo mentions its maritime 
town Saronic.

TRIPI, in Geography, a town of Sicily, in the valley of 
Demona; 8 miles S. of Pati. N. lat. 38° 10'. E. long. 
15° 15'.

TRIPINNA, in Botany, fo denominated from the 
triply-pinnate leaves.—Lourievo, Cochinch. 391.—Clafs and 
orde, Didynamia Angiospermas.

This appears to be a very handsome and large tree, with 
painted orange-coloured flowers, a berry of one cell, with 
feal feeds, and smooth, ovate, pointed leaves. It may be 
ferred to Juffien's order of Fites, but whether to any 
derifed genus, we want materials to determine. This
tree is a native of mountainous woods in Cochinchina.

The TRIPLARIS, from trifolium, threefold, because of the prevalence of the number 3, in all the parts of fructification.


Gen. Ch. Male, Cal. Perianth of one leaf, turbinate, in fix ovate, acute, concave segments, externally hairy. Cor. none. Stam. Filaments nine to twelve, thread-shaped, inserted into the calyx below its divisions, which they exceed in length, behind a crown of very short hairs; anthers heart-shaped, erect.

Female, Cal. Perianth of one leaf, inferior, large, permanent; tube ovate, swelling; limb erect, in three deep, lanceolate, membranous, veiny, obtuse segments. Cor. Petals three, linear, obtuse, veiny, permanent, closely pressed to the germen. Stam. Filaments about twelve, very short, awl-shaped, erect, inserted in the male, but destitute of anthers, and often altogether wanting. Pfl. Germen superior, large, triangular; stigmas three, very short; flower trigamous, awl-shaped, keeled, hairy. Peric. none, except the permanent calyx. Seed. Nut triangular, pointed, inviolate with the tube of the calyx.


Female, Calyx inferior, in three deep segments. Petals three. Styles three. Nut triangular, clothed with the calyx.


TRIPLE, Threesfold. See Ratio and Sub-triple.

Triple, in Mufic, is one of the species of measure, or time.

Triple time consists of many different species, of which there are in general four, each of which has its varieties. The common name of triple is taken hence, that the whole, or half measure, is divisible into three equal parts, and is beat accordingly.

The first species is called the simple triple, in which the measure is equal to three semi-breves, three minims, three crotchets, three quavers, or three semi-quavers, which are marked thus, †, ⅔, or 2, ⅔, ⅔; but the lat is not much used, except in church music.

In all thes the measure is divided into three equal parts, or times, called thence triple times, or the measure of three times; of which two are beat down, and the third up.

The second species is the mixt triple; its measure is equal to fix crotchets, or fix quavers, or fix semi-quavers, and accordingly it is marked ⅓, or ⅔, or ⅔; but the lat is seldom ufed.
enjoyè, arose, and treated all musicians as ignorant and absurd, who had not opposed temperance, and regarded all music as diffonance which had been composed for tempered scales. But we have heard nothing of the learned abbé since the Revolution; and there seems to be no more true believers left in Pythagoras' doctrine of the triple progression, in Europe at least, than in that of the transmigration of souls.

**TRIPEL QUARTER FEVER.** See **Fever.**

**TRIPLE Incision.** See **Engrafting.**

**TRIPlicate Ratio.** The ratio which cubes bear to each other.

This ratio is to be distinguished from triple ratio, and may be thus conceived. In the geometrical proportionals 2, 4, 8, 16, 32, as the ratio of the first term (2) to the third (8) duplicate of that of the first to the second, or of the second to the third; so the ratio of the first to the fourth is to be triplicate of the ratio of the first to the second, or of that of the second to the third, or of that of the third to the fourth, as being compounded of three equal ratios.

**TRIPlicatio, Triplication, in Civil Law,** is the fame with fur-rejoinder in common law.

**TRIPLElicity, or TRIOON, among Astrologers,** is a division of the signs, according to the number of the elements; each division consisting of three signs.

Triplicity is frequently confounded with trine aspect; though, firstly speaking, the two are very different things: triplicity is only used with regard to the signs, and trine, on the contrary, with regard to the planets.

The signs of triplicity are those which are of the fame nature, and not those which are in trine aspect. Thus Leo, Sagittario, and Aries, are signs of triplicity, because those signs are, by these writers, all supposed fiery.

**TRIPOLO Heath,** in Geography, a common of England, remarkable for being the spot where the army formed the council of agitators, and chose Oliver Cromwell for their commander, in 1643; 8 miles S. of Cambridge.

**TRIPOIDES,** a surgeon's instrument, with a three-fold blade, used in the refracting of great depreffions of the skull. Blanc.

**TRIPOD,** Tripod, in Antiquity, a famed sacred seat or stool, supported by three feet, on which the priest and fylbs were placed to render oracles.

It was on the tripod that the gods inspired the Pythians, with that divine fury and enthufiasm with which they were seized at the delivering of their predictions.

M. Spanheim obferves, that, on Roman medals, the tripod expresses some priesthood, or facerdotal dignity. A tripod, with a raven and a dolphin, is also the fymbol of the divinity, depcted for keeping of the fibiline oracles, and for confulting them on occation.

Athenæus admits only two forts of tripods, that are reduced to great and small tripods. But Banier differentiates three kinds. Under the fird he includes those used by the Pythia, when the delivered the oracles of Apollo in the temple of Delphos. The second kind comprehends whatever stood upon three feet, fuch as vases, tables, &c. of which there was a great number. Under the third class are included the votive tripods, which princes or private persons dedicated in the temples of Apollo. Herodotus (lib. ix.) speaks of a golden tripod, which the Greeks, upon their victory over the Perians, sent to Delphos. Most of the tripods found in the cabinets of the curious, are of bronz or of bronze.

**TRIPON of Aoph.** See **TRITON.**

**TRIPODIUM.** In the laws of Henry I. occurs this

*paffage—" Inquibus vero causis triplicem ladam haberet, ferat judicium tripodi, i.e. 60 solid. The meaning of which, according to Home, is, that, as for a small offence the composition was twenty shillings; so for a great offence, which was to be purged triplici lada, the composition was three times twenty shillings, and this was called *tripodi.*

**TRIPOLDA, in Geography,** a town of Naples, in Principato Ultra; 16 miles S. of Benevento.

TRIPOLI, a country of Africa, which, though tributary to the grand signior, is called a kingdom or regency; bounded on the N. by the Mediterranean; on the E. by Barca, or, considering Barca as a province of Tripoli, by Egypt; on the S. by the Atlas mountains, and on the W. by Tunis and Bledigerdir; about 600 miles from E. to W. The breadth, from N. to S., is various, from 120 to 250. It has formerly been divided into seven provinces, or with Barca, eight; but it is generally distinguished into Maritime and Inland: the inhabitants of the former generally live upon commerce and piracy; the latter for the most part on plunder and robbery. Each division hath some cities and towns, besides a number of villages, which lie scattered chiefly through the latter; most of them very poor and thinly inhabited; the country being almost every where sandy and barren: as for cities and towns, there are few of consequence, the greater part being either wholly depopulated and gone to ruins, or only inhabited by a few fishermen, lime-burners, potash-makers, and here and there some few labourers; the chief part reduced to the lowest degree of misery and wretchedness, through the cruel exactions of the government, or the frequent depredations of the Arabs. The government, religion, laws, and customs of this kingdom are in a great measure the fame with those of Algiers and Tunis. Only with respect to the sit of these articles, it will not be amifs to observe, that the beyas of Tripoli are not mere titular vaftals to the Porte, but really under subjection and tributes. This joined to the other exigencies of the regency, the avarice of the Turkish bashaws fent thither from Constantinople, and the general decay of commerce, obliges them to load the subjects with fuch heavy taxes and extortions, as hath reduced the greatest part of the kingdom to the lowest degree of indigene and misery. The revenues arise chiefly from their corfairs, which are neverthelefs but few, seldom exceeding seven or eight, and of these only one can properly be fyled a ship, the rest are small galleys, poorly manned and equipped. The next is the duty on imports and exports; the tax on the Jews, who are here very numerous; on the natives, who, though ever fo poor, must yet pay part of the produce of their ground, or manufactures; and lastly on the country Moors and Arabs, among whom the bey sends his flying camp of jauizaries to levy it; for these laft, as well as the Moors, are kept fo poor by those heavy taxes, that nothing but force, and sometimes exemplary severity, can extort it from them. The bey, by means of his protection from the Porte, makes shift to keep up a kind of despotic power, as he is besides generalissimo of all the forces. As for their commerce, it chiefly confifs in slaves, either fuch as are taken by their corfairs, or fuch as they traffic for with their neighbours: the greatest part of both they fend into 'Turkey, where they can difpofe of them to the hell advantage. The next branch is that of aches, which they buy from the Arabians, and fend to the Europeans, to make glass and soap: the rest of their traffic is not worth mentioning. One circumstance in the conduct of this regency deserves notice: they are more scrupulous observers of their treaties with other nations than any of their neighbours: which punctuality, whether it proceeds from real probity, or a conscientious of their own
own weakens, is nevertheless of no small advantage to navigation and commerce. This state, as well as the rest of Barbary, after being freed from the Roman yoke, palled successively under the Vandals, Saracens, and the kings of Morocco, Fez, and Tunis; till, weary of their slavery and oppression, they resolved to have a monarch of their own, whom they chose from among themselves; and the new monarch governed them at first with great equity and moderation; but the no sooner saw himself out of danger, than he began to play the tyrant in his turn to such a degree, that the citizens confpired against him, and he was murdered by his own brother-in-law. They chose in his room another, named Abubacer, who had been formerly an officer under him, but had since retired, and turned marabout or hermit; but he had not reigned many months, before Ferdinando, king of Capeode and Aragon, sent thither Peter, count of Navarre, with a powerful fleet and army, which laid siege to the capital. Abubacer, finding himself unequal to so powerful an enemy, surrendered on honourable terms, and was sent with his wife, two sons, and an uncle, to the emperor Charles V. then at Palermo, who soon after restored him to his former dignity, on condition that he should become his vassal and tributary. Abubacer rebuilt and re-peopled the city, which he held in the emperor's name, till the knights of Rhodes were driven out of that island, and forced to retire into Syracuse, when Charles was pleased to bellow the island of Malta upon them, and to change the city and castle of Tripoli. They first accordingly, and took possession of both, made one of their order governor, and put a garrison into it of their own troops. They were fearfully settled in this new acquisition, before Barbarossa made himself master of it, but it was soon after retaken by the emperor, and restored to them, who continued in possession of it till the reign of Solyma, who, under pretence that it had been retaken during the truce, sent thither a naval armament, consisting of about 110 royal galleys, and 30 other vessels, under the command of Sinan pasha, who had under him the famed Salha Rais, furnamed Devil-driver, and the no less famous Dragut; and notwithstanding every means of defence, it was obliged to surrender, and delivered up to the Turks, after it had continued in the possession of the Christians a little above forty years, from the time of its being taken by the count of Navarre. Sinan committed the government of it to the aga Morat, upon condition that he should hold it under the grand vassal, and reign it whenever he should appoint another governor and castle of Tripoli. It was not long however, before the famed corsair Dragut got possession of this place. He fortified both city and castle with strong walls, and two forts near the sea-fide, well supplied with artillery and ammunition; by which means it became one of the strongest cities in Africa, and the common retreat of most of the corsairs that roved under Turkish colours, from whence they infested the coasts of Italy, Sicily, Naples and Spain, and a fruitless attempt was made by the Christians to retake it. After the death of Dragut, the Porte continued sending either a fangir or basha to Tripoli, the castle being garrisoned with Turks, and the city inhabited by Moors, and the kingdom still paying tribute to the grand vassal. The piratical trade went on with success; the renegades met with the usual encouragement from the Turks, and were promoted to the command of the corsairs, and even of their own fleets, and sometimes to the basha-whip; these recommending themselves to the regency, not only by their desperate behaviour, but much more by their peculiar barbarity to the Christian prisoners, which often provoked reprisals, that were carried on both sides to such extents as can hardly be particularized without horror. In this condition the kingdom continued till the Turkish government, becoming more and more intolerable, by the avarice and tyranny of those bashaws, a certain marabout named Sid Hajah, about the close of the sixteenth century, found means to raise a general revolt both in the city and country. Unfortunately for him, he did not take care to secure a foreign assistance, before he broke out into open rebellion; so that Hafcen bishaw, the Turkish admiral, came suddenly upon him, at the head of sixty galleys, and a number of other ships and forces, which he had procured from Tunis and Algiers, and defeated him so often, that he was at length abandoned by his troops, and affianced by his own partisans. Hafcen sent the marabout's head to Constan- tinople, and had hardly settled the government on the old footing, when a new governor, sent thither from the Porte, found much more effectual way to free them from this tyranny. This man was a renegado Greek, of the ancient family of the Julianians, known by the name of Mahmet Beygh, who, by his intrigues and bribes, had obtained a banner or government from the grand vassal. He failed directly to Tripoli, and having got possession of the castle, refused to acknowledge or receive any bishaw from Con- staninople. He took the reins of government wholly upon himself; not indeed as independent, but as vassal and tributary to the Porte, to whom he obliged himself to pay a tribute and present once a year, as an acknowledgment of his subjection and dependence on his masters.

**Tripoli**, a city and sea-port of Africa, and capital of the country so called, situated on the coast of the Mediterranean. It was formerly divided into two parts, the Old and New; the former, which was the native country of the emperor Severus, is supposed to have been built by the Romans, was since conquered by the Vandals, and at last destroyed by the Mahometans, under their caliph Omar II. since which time it hath never recovered its importance, and is now almost gone to ruin; the latter, which stands at a small distance from it, though of no great extent, is populous, and in a flourishing condition. It stands on a foundation of rock, by the sea-side, surrounded with high walls and stout ramparts, flanked with pyramidal towers, but not kept in good repair. The sea washes the town on three sides; and on the fourth a sandy plain, called the Meffeia, joins it to the rest of the country. On the E. it is divided from Egypt by the dreary deserts of Barca, where the bashes refuse but occasionally the wandering Arab, but hath but two gates, one toward the inland on the S., and the other to the sea on the N., where it expands itself in a form of a crescent, near a spacious and commodious haven. On entering the harbour, the town manifests the dilapidations of time, large heaps of rubbish appearing in various parts of it. The castle, or royal palace, where the basha resides, is at the E. end of the town within the walls, with a dockyard adjoining, where the bey (the basha's eldest son) builds his cruisers. The castle is very ancient, and is inclosed by a strong wall, that appears impregnable; but within, it is totally deftute of symmetry.

New Tripoli is supposed to have been built by the natives, who gave it the name of Tarabilla, or Trebrida, whence the Latins call it Tripoli. Some authors pretend that it was once a place of vall trade, on account of its neighbourhood to Numidia and Tunis, reforted to by vessels from Malta, Venice, Sicily, Marfellies, and others; there being hardly such another commodious sea-port along this whole coast, except Alexandria; by which means it became so opulent, that it was filled with rich merchants, abounded with fine monu.png_46
TRIPOLI.

The Greek name Tripoli, denoting three cities, is derived from its having been built by three colonies, from Tyre, Sidon, and Arfus, each of which formed settlements so near each other that they were soon united into one. It is separated from the sea by a small triangular plain, half a league in breadth, at the point of which is the village where the vessels land their goods. The Franks call this village La Marine, the general name given by them to these places in the Levant. There is no harbour, but a simple road, which extends from the shore to fouths, called the Rabbit and Pigeon Islands. The bottom is rocky, and mariners are not fond of remaining here, as the cables are soon worn out, and the vessels exposed to the N.W. winds, which are frequent and violent on all this coast. In the time of the crusades, this road was defended by towers, few of which are still subsisting from the mouth of the river to the village. They are strong built, but now serve only as a place of resort for birds of prey. All the environs of Tripoli are laid out in orchards, where the nopal grows spontaneously, and the white mulberry is cultivated for the silk-worm; and the pomegranate, the orange, and the lemon-tree, for their fruit, which is of the greatest beauty. The grounds belonging to it extend as far as Mount Lebanon, and abound in vineyards. Each hill produces a different wine; but the golden wine is most admired. But these places, though delightful to the eye, are unhealthy. Every year, from July to September, epidemic fevers, like those of Alexandria and Cyprus, rage here: these are owing to the artificial inundations with which the mulberry-trees are watered, in order that they may throw out their second leaves. Besides, as the city is open only to the west, the air does not circulate, and the spirits are in a constant state of oppression, which makes health at best but a kind of convalescence. At La Marine the air is more exhilarating, its circulation being less impeded. The commerce of Tripoli consists almost wholly in indifferent coarse silks, which are made use of for laces, and is in the hands of the French alone. But they are losing their quality, which is owing to the decay of the mulberry-trees. They have a confid here, and three commercial houses. They export silks, and spunges filled up in the road; these they exchange for cloth, cochineal, sugar, and West India coffee; but this factory, both with respect to imports and exports, is inferior to Latakia; which fee.

The pachalic of Tripoli comprehends the country which stretches along the Mediterranean from Latakia to the Nahr-el-Keil, and is bounded on the W. by that torrent, and the chain of mountains which overlook the Orontes. The principal part of this government is hilly, the sea-coast alone between Tripoli and Latakia being a level country. The numerous rivulets which water it contribute greatly to its fertility; but notwithstanding this advantage, this plain is much less cultivated than the mountains, without even excepting Lebanon, with its numerous rocks and pine-trees. Its chief productions are corn, barley, and cotton. In the territory of Latakia, tobacco and olives are principally cultivated; but in Lebanon and the Refraoum, white mulberry-trees and vineyards. This pachalic contains several tribes and religions. From Lebanon to above Latakia, the mountains are peopled by the Anfarians, a particular sect of religious, which first rose in the latter end of the ninth century; Lebanon and the Refraoum are inhabited entirely by the Maronites; and the sea-coast and cities, by Christians, Greeks, and Latins, Turks, and descendants of the Arabs. The pacha of Tripoli enjoys all the privileges of his place. The military and finances are in his hands; he holds the government in quality of a farm from the Porte, on a lease of one year only, at the annual rent of 750 purses (35,000£).
In 1101, this town was taken by the Chrislians, and held by Bertrand, fon of Raymond, count of Toulouse, as a county, in which situation it remained till the year 1288, when it was taken by Melec Melior, sultan of Egypt, who ordered it to be razed to its foundation; 75 miles N.N.W. of Damasfeus. N. lat. 34° 18'. E. long. 35° 36'. Volney's Travels in Egypt, &c. vol. ii.

TRIPOLI, in Mineralogy, a mineral originally brought from Tripoli for the polishing of flones and metals, whence it derives its name. It has a dull argillaceous appearance, but is not compact; it has a fine but hard grain, and does not soften by water, or mix with it. The colours are grey, inclining to red or yellow. From analysis, it proves to be principally composed of silex. Tripoli appears to be of two formations; the one by fire, which has hardened plates or sand-flones, and converted them into this substance; the other by water, decomposing beds containing silex, clay, and iron. The tripoli from Derbyshire, called rotten-flone, may be referred to the latter formation; it occurs in the upper part of the great shale stratum which covers the mountain lime-flone of that district: it is dug near the surface, and is sold for 60s. per ton. Farey's Derbyshire, vol. i. p. 231.

The tripoli of Poligné, near Rennes, in Brittany, is fusible. It is of a red colour of different shades. Trunks of trees are found changed into tripoli in the middle of the beds, which are covered by beds of sand-flone in an inclined position.

The tripoli of Venice is the most esteemed; it comes from the island of Corfu. It is fchistose, and has a yellowish-red colour. Sauffure has remarked in this tripoli, and in the preceding, a multitude of small cylindrical pores.

Tripoli is found at Menal, near Riom, in the department of Puy-de-Dôme. It occurs in beds which appear to have been formerly ichilts changed by the action of volcanic fire. This fusible is found in the quarries of chalcedony of Volterra in Tuscany, and is said to be so situated as to appear evidently the result of the decomposition of the chalcedony. It occurs in coal stratata at Pulchappel, in Saxony. The tripoli from Billin, in Bohemia, occurs in thin beds, which pass insensibly into pitch-flone. Acids produce no effervescence with it; nor is it melted by the most violent heat; though it is somewhat hardened.

In fact, we sometimes find tripoli in volcanic mountains, or in stratata which contain beds of coal in a state of combustion; and sometimes in beds formed evidently by deposition from water. It should appear that certain stratata, composed principally of silex in a state of extreme minute division, and combined with iron and clay, are decomposed by the agency of water, and the latter materials being in a great part removed, the silex is left porous and friable, and coloured by iron; it then forms tripoli; and beds of this mineral may have been so formed, and afterwards covered by streams of lava, where they occur in volcanic mountains. Where silex is intermixed with a portion of alumine and iron, as in ichilts, the alumine by exposure to a great heat may be hardened and contract, and leave the flone in a porous or friable state. The specific gravity of tripoli is stated by Bucholz at 2.202, and its constituent parts

<table>
<thead>
<tr>
<th>Component</th>
<th>Specific Gravity</th>
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<tbody>
<tr>
<td>Silex</td>
<td>81</td>
</tr>
<tr>
<td>Alumine</td>
<td>1.50</td>
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<tr>
<td>Oxid of iron</td>
<td>8</td>
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<tr>
<td>Sulphuric acid</td>
<td>3.43</td>
</tr>
<tr>
<td>Water</td>
<td>4.55</td>
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</tbody>
</table>

The sulphoric acid and water are considered as accidental.

For the method of imitating gems by means of tripoli, see Gems.

TRIPOLIS, in Ancient Geography, a country of the Peloponnesus, in Arcadia, to call all on account of its three towns, according to Pausanias.—Also, a town of Phoenicia, situated about half a league from the sea, and 18 miles from Orthoa. Diodorus and Strabo derive its name from three towns of which it originally consisted, about a stadium from one another.

Alexander the Great subdued this city, which, after his death, passed to Ptolemy Soter, whose successors retained possession of it till the reign of Antonious the Great, king of Syria, who made himself master of this town and the whole of Phoenicia, towards the year 219 B.C. After its subjugation by Pompey, it passed under the dominion of the Romans, but was allowed the privilege of being a free city, and of being governed by its own laws. Under the empire of Vespasian, Tripoli assumed the epithet of Flavian. The territory of Tripoli was watered by many rivers and streams, which descended from Libanus. About two leagues E. of Tripoli was a tomb formed in a rock, which the Syrian Christians held to be the sepulchre of Canaan, the father of the Phoenicians.

TRIPOLIS, a town or country of the Peloponnesus, in Arcadia, which afforded ample supply both of men and cattle, according to Pausanias.—Also, a country of Thebaly, where the towns of Pythium, Azorum, and Dolicha, according to Livy.—Also, a town of Asia, on the Meander, and capital of Caria.—Also, a town of Asia, on the banks of the Euxinus sea, W. of Trebifond.

TRIPOLITANA REGIO, or Tripoli, a country of Africa, bounded N. by the Mediterranean sea, E. by the river Cinyps or Cinyphus; situated in the midst of Libya Interior, and W. of the river Triton. Procopius says, that Sergius was appointed governor of this province by Justinian, at whose instigation the inhabitants embraced the Christian religion. They were called the "allies of the Romans," because they faithfully maintained peace with them. Some have confounded Pentapolis with Tripolis. See TRIPOLI, in Geography.

TRIPOLIZZA, in Geography, a town of European Turkey, in the Morea, the capital of a pacha, having about 12,000 inhabitants. In 1770, this town was besieged by the Russians and revolted Greeks, but a considerable detachment of Albanian cavalry coming up, the Greeks fled and left the Russians to the content alone, of whom hardly one escaped. The Albanians afterwards, under a pretence that the inhabitants had held a correspondence with the enemy, put three thousand of them to the sword in less than two hours, and then plundered and set fire to the town; 18 miles W. of Napoli di Romania.

TRIPONTIO, or TRIPONZO, a town of the Popedom, in the duchy of Spoletto, on the Nera; 12 miles N.W. of Norcia.

TRIPOUNTUM, in Ancient Geography, a place of Italy, in Latium, on the Appian way; which appears by the military column to be at the 39th mile; it was repaired by the emperor Trajan. The Goths constructed a tower in this place.

TRIPOUNTUM, a town of Great Britain, in the sixth Iter of Antonine, supposed to be Rugby. Drs. Gale and Stukeley place it at Dowbridge, and the last of these authors derives its name from ire, a town, and pont, a little valley, in which Dowbridge is situated. Camden and Baxter fix Tripontium at Towcester, and Camden derives its name from the British words Tair-ponti, signifying three
three bridges. But Mr. Horsey supper it to have been situated where the town of Rugby now stands.

TRIPOOR, in Geography, a town of Hindoostan, in Myfore; 25 miles N.E. of Coimbore.

TRIPPING, in Heraldry, denotes the quick motion of all sorts of deer, and of some other creatures, represented with one foot up, as it were, on a trot.

In speaking of lions, they say paffant, instead of tripping.

TRIPPING, in Sea Language, denotes the movement by which an anchor is loosed from the bottom of its cable or buoy-ropes. See ARTRIP.


Gen. Ch. corrected by Schreber. Male flowers in pairs, unilateral, alternate, mostly in the upper part of the spike.

Cal. Glume two-flowered; the outer floret male; inner neuter; each of two valves; outer valve lanceolate, flat, obtuse, awnless, cartilaginous, thinner at the edges; inner valve, which is oblong, triangular, keeled, acute, about the same length. Cor. in each floret of two nearly equal valves, membranous, very thin, awnless, smaller than the calyx; the outer valve ovate, boat-like, blunt; inner lanceolate, cleft at the end. Nectary of two minute, triangular, fleshy, convex, abrupt valves, pointed at each end, thinnest at the upper margin, notched in the middle. Stam. in the inner floret, Filaments three, capillary, longer than the calyx; anthers parallelipipedal; in the inner, Filaments three, very slender, somewhat combined; anthers none.

Female flowers in the lower part of the same spike, alternately funk in the common flak, at each side. Cal. Involucrum ovate, cartilaginous, very thick, tumid below, polished; obliquely bordered at each side externally; blunt and somewhat emarginate at the end; embracing the inner glumes with its thinner margin. Glume of two valves; the outermost oblong, tumid, taper-pointed, thickish, double; inner thinner, but rather blunt. Cor. of two valves, smaller and thinner than the calyx; the outer valve largest, tumid, bluntly three-toothed; inner rather smaller, flat at the back, emarginate. Abortive glume of one valve, oblong, folded in at each margin, furnished with two teeth, and situated at the fore-side of the fertile floret, to which it is much inferior in size. Nectary minute, of two linear, membranous, very thin scales, acutely notched at the summit. Stam. Filaments three, minute, at the base of the germin, capillary, dilated below; anthers linear, minute, imperfect. Pil. Germin superior, oblong; style one, composed, longer than the calyx; stigmas two, very long, villous, twifled. Peric. none. Seed solitary, ovate, a little compressed, pointed with the permanent style.

Obi. At the base of the involucrum, at each side, is an opening, lined internally, on one side, with bristly hairs.

Eff. Ch. Male, Calyx a glume of two flowers, the innermost neuter. Corolla of two membranous valves.

Female, Calyx a single-flowered glume, enclosed in a single-leaved involucrum, pierced at each side. Corolla of two valves. Stigmas two. Seed one.


Hort. Cliff. 438. Gramen daitylodes maximum americanum; Pluk. Phyt. t. 190. f. 2. G. daitylodes indicum efeulentum, spica articulata; Ambrosin. Phyt. 546, 547, rude, but expressive. Sefamo perenne indiano, pianta frumentacea; Zanon. Ift. 181. t. 69, not 68. — Spikes aggregate, about three together, male in the upper part, female at the base.—On the banks of rivers, and along the sea-shore, in Virginia, Carolina, and the country of the Illinois, flowering in Augufl.

Pursh. Root perennial, thick and woody, with many strong zigzag fibres. Stems numerous, erect, reedy, four or five feet high, round, smooth, as thick as a goose-quill, knotty; leafy below. Leaves long, linear, taper-pointed, an inch broad, smooth. Spike a Pan long, smooth, usually three together, often more or fewer; the male flowers very numerous.

T. montifolius, Willd. n. 2. Hort. Berolin. t. 1, found in salt meadows and ditches, from New York to Carolina, seems, as Pursh remarks, to be but a single-spired variety of the former; probably such as is represented by Miller above cited.


T. haemaphroditum. United-flowered Tripsacum. Linn. Sp. Pl. 1379. Willd. n. 4. Ait. n. 2. Linn. fil. Dec. 17. t. 9. (Cenchrus n. 2; Browne Jam. 367.)— Spike solitary, tapering, with a wavy flak, and rather dilatant spikelets.—Native of gassy pastures in Jamaica, where it is fed on by all sorts of cattle. The root is annual, fibrous. Stem from eighteen to twenty-four inches high, leafy, smooth. Leaves pointed, somewhat rough-edged. Spike tapering, pale, smooth. Sinus at each side of the involucrum delitute of internal hairs, but accompanied by a fort of blunt short spur.

TRIPTERELLA, a diminutive from τρίς, three, and πτηρός, a wing, used by Michaux to express the character of the three little narrow wings, projecting from the angles of the calyx, or rather corolla; not, as De Theis says, of the capsule.—Michaux Boreal.-Amer. v. 2. 42. Pursh 28.—Clasf and order, Triandria Monogynia, Nat. Ord. akin to Burmannia, and perhaps Hypoxis; genera whose place in Jussieu's system is not well settled.

Gen. Ch. Cal. none, unless the corolla be taken for such. Cor. of one petal, permanent, superior; tube swelling at the base, contracted in the middle, angular, with three flight wings, at the summit; limb shorter than the tube, in fix deep segments, the three intermediate ones minute. Stam. Filaments three, very short, inserted into the tube below the three smaller segments of the limb; anthers within the tube, of two widely separated lobes. Pil. Germin inferior; style the length of the flaments, triangular; stigma in three short, thickish, blunt segments. Peric. Capsule membranous, triangular, of three cells, crowned with the withered corolla. Seeds numerous, minute, oblong, cylindrical, friated.

Eff. Ch. Calyx none. Corolla superior, of one petal; its tube angular, swelling at the base; limb in fix segments, the three intermediate ones minute. Capsule of three cells, with many seeds.

TRIPUNETAIRE, in Geography, a town of Hindostan; 35 miles E.N.E. of Cochín.

TRIPURA, a city often mentioned in the mythological relations of the Hindoos, as having been destroyed, together with its wicked sovereign Tareka, by their god Siva, who is hence called Tripuranika, or the destroyer of Tripura. See SURA and TAREKA.

TRIPURANTEKA, in Mythology, a name of the Hindoo god Siva, so called from a mythological relation of his having destroyed a city and tyrant named Tripura.

TRIPYRAMIDES, derived from τριμ, three, and πυργος, a pyramid, in Natural History, the name of a genus of sars.

The bodies of this genus are sars composed of single pyramids, each of three sides, standing on no column, but affixed by their bases to some solid body.

Of this genus there are only two known species: 1. A short and thick one, found on the sides of the back of Hone Northamptonshire, and elsewhere; but this is not common, and is usually small. 2. A long one with a narrow base: this is not found in England, but is common in the German mines. Hill.

TRIQUETRA Ossa, in Anatomy, the small irregular bones of the human cranium. See CHIRURGIA.

TRIQUETRUM, among Botaniš. See LEAF.

TRIRAPHIS, in Botany, from τρις, three, and ἀράθις, a needle, or awl, because of the three straight awns,—Brown Prodr. Nov. Holl. v. 1. 185.—Cliffs and order, TRIANDRIA DIGYMINA. Nat. Ord. Graminae.

Eff. Ch. Calyx many-flowered, of two equal, awnless valves. Spikelet two-ranked; two, or more, of the lowest florets perfect, the rest male, or neuter. OUTER valve of the corolla with three terminal straight awns; inner awules. Nectary of two scales. Stigmas villous.

A genus of grasses found within the tropics, akin to the TRIODIA and PAPPOPHORUM of Mr. Brown, (see those articles); and therefore to his ETRIOFIA, and the CHLORIS of Swartz, which are said to be very little different from each other. The flowers are panicle. Two New Holland species, gathered by the learned author in the tropical part of that country, are all that occur in his Prodrorus; nor does this genus find a place in Mr. Kuntl's South American work. Probably however there may be East Indian species, unknown to us.

1. T. pungens.—"Panicle loose. Outer valve of the corolla coriaceous, minutely downy. Awns equal; the middle one simple. Leaves involute, spreading, straight—Brown.

2. T. mollis.—"Panicle close. Outer valve of the corolla bearded with spreading hairs. Middle awn furnished at each side with a bristle-like appendage—Brown.

TRIREME, or TRIREMIS, in Antiquity, a galley with three ranks of oars on a side. See ENNEAB.

TRISACRAMENTARIANS, or TRISACRAMENTARIANS, an appellation given to a sect in religion, who admit of three sacraments, and no more.

There have been several Trisacramentarians who allowed of baptism, the eucharist, and abolution for sacraments.

The English are often misrepresented by foreigners as Trisacramentarians, from an opinion that they allow ordination to be a sacrament.

TRISACTIS, in Natural History, the name of a genus of flax-flint, composed of a body and three rays, the more usual number being five.

TRISAGA, in Geography, a town of Italy, in the Ca-dorn; 14 miles N.N.E. of Cadora.

TRI-
TRISAGION, or TRISAGIUM, τρισάγιον, composed of τρις, three, and ἄγιος, ἅγιος, holy, in Church History, a hymn, in which the word holy is repeated three times.

The proper Trisagion is that word, Holy, holy, holy, Lord God of Sabaoth, which we read in Isaiah, vi. 3., and in the Apocalypse. From these words the church formed another trisagion, which is rehearsed in Latin and Greek, in the respective churches, to this effect, Holy God, Holy Mighty, Holy Immortal! have mercy upon us. Petrus Fullenius to this trisagion added, εἰς τὴν ἁμαρτίαν, Thou who was crucified for us — have mercy, &c. thus attributing the passion, not to the Son alone, but to all the three persons of the Trinity; and he pronounced anathema to all such as would not say the fame. See Theopaschite.

The use of the second trisagion (exclusive of the addition of Fullenius) began in the church of Constantinople, from whence it passed into the other churches of the East, and afterwards into those of the West: and still subsists in its primitive purity, both in Latin, Greek, Ethiopic, and Mozarabic offices.

TRISAKTI, or TRISAKTI-DEVI, in Hindoo Mythology, is a name of the goddess Parvati, consort of Siva. It means of triple energy; both god and goddess having various triform characters and potencies, and many names indicative of three-fold properties. Parvati is found to have many attributes and appellations corresponding with those of the Grecian Juno or Diana; among them several derived from their three-fold character. Triva, for instance; and by the way, the meeting or junction of roads was mysteriously facred to both. See Junction.

Tritoma, Tergemania, &c. are appellations of the Triple Hecate. See Potter's Archæol. Græc. ch. xix.

TRISANTHUS, in Botany, from τρις, three, and σαυρος, a sower, because there are three flowers in one common calyx.—Loureir. Cochin. 1753.—Clafs and order, Peniandra Dignia. Nat. Ord. Umbelliferae.


1. T. cochinchenefis. Rau má of the Cochinchinefe. The only defcribed species, frequent about hedges in Cochinchina, where, though an efculent herb, it is not cultivated. The author thought he had at one time with this plant in China, as well as other parts of the East Indies; and he gives the Ptx. cyphus of Rumphius, book g. chap. 60. t. 169, f. 1, which is no other than Hydrocygia afica of Linneaus. They may be one and the fame, as Loureirco was moft inclined to believe. He describes his Trifantbus with a long, trailing, slender, thread-shaped stem, taking root at nearly regular intervals. Leaves from the fame points as the roots, roundish, concave, rugose, smooth, crenate, divided half way down, on long, erect footstalks. Germen purple, which Loureiro takes for a perianth investing the seed, and becoming a pericarp. The flower-stalks are radical, crowded, rather long.

The whole plant is said to be vulnerary, cleansing, diuretic, and nephritic. Loureiro knew a man who, having deprived himself, at a stroke, of parts which malf people with to preferve, healed the wound readily by the applica-

TRISMEGISTUS, formed from τρις, three, and μεγας, great, &c. an epithet, or surname, given to one of the two Hermes, or Mercury, kings of Thebes, in Egypt, who was contemporary with Moses.

Mercury, or Hermes Trismegistus, is the latter of the
two Hermætes; the former having reigned about the time of the Deluge. They are both of them represented as authors of many of the arts and institutions of the Egyptians. See HERMES.

TRISMIΣ, or TRISMIS, in Ancient Geography, a town of Lower Media, near the Danube. Polit. This place is marked in Ant. Itin. on the route from Viminacium to Nicomedea, between Biroen and Arrubium.

TRISMOS, πεσμός, or πησμός, a convulsion of the muscles of the temples, causing the teeth to gnash.

TRISOLYMPIONICA, τρισολυμπιονικα, compounded of τρίς, three, ολυμπία, Olympic games, and νική, victory, among the Ancients, a person who had thrice borne away the prize at the Olympic games.

The trilemyonpica, or trilemyompiad, had great privileges and honours allowed them. Statues were erected to them, of the kind called icôneis, which were modelled to the size and form of their persons.

They were also exempted from all taxes and incumbrances, and could never be marked with infamy.

TRISPAST, TRISPASTON, compounded of τρίς, three, and σπαστός, I draw in Mechanica, a machine with three pulleys, or an assemblage of three pulleys, for raising great weights.

The trispaston is a species of polypaston.

TRISPERMUM, in Pharmacy, the name of a catalpham, or poultice, confisting of three ingredients; these are cummin and opium feed, and bay-berries.

TRISSA, in Ichthyology, a name used by some authors for the fifth more commonly known by the name of alaufa, and called in English haddock, or the mother of herrings.

TRISSACRAMENTARIANs. See TRISACRAMENTARY.

TRISSANTON BAY, in Geography. See SOUTHAMPTON.

TRISSARRI, a town of France, in the department of the Lower Pyrenees; 9 miles S.W. of St. Palais.

TRISSILD, a town of Norway, in the diocese of Aggerhus; 65 miles N. of Kongiwingen.

TRISSINO, GIANGIORGIO, in Biography, an Italian poet, was defended from a noble lineage, and born in 1478 at Vicenza. In his youthful studies he was indefatigable and ardent. Besides the Latin and Greek languages, the latter of which he acquired under Demetrius Chalcondylas, he became proficient in mathematics, phylsics, architecture, and other fine arts. He was employed in polls of truth and honour by the popes Leo X. and Clement VII., and he also received many tokens of distinction from the Venetian republic and his native city. He was twice married, and with both his wives he lived happily at Vicenza. But a law-suit, in which he engaged with the son of his first wife, obliged him to retire to Murano, near Venice, and having lost his caufe and a great part of his property, he went to Rome, where he died in 1550. Ambitious of being a poet, he cultivated an imitation of the ancients; and his tragedy of "Sofonilba," formed after the laws and manners of their drama, and the first in which verie without rhyme was employed, has been considered as the first Italian work of that class. This tragedy, framed by the author in 1515, was not printed till the year 1524. His next production was a comedy, intitled "Similini," which was well received. But his great work, in which he was engaged for twenty years, was his epic poem, intitled "Italia Liberata de' Gotth," the subject of which was the deliverance of Italy from the Goths in the reign of the emperor Justinian. His model in the composition of this work was Homer, whom he fervilely imitated, inomuch that, according to Voltaire, "he took every thing from him but his genius." The success of this poem by no means corresponded to his expectations. Of his other works, and his whimsical but ineffectual project of introducing certain Greek letters into the Italian alphabet, we need not speak here. The Bishop of TRISTAN d'Acunha, in Geography, the largest of three islands in the South Atlantic ocean, about 1500 miles from any land either to the west or north, very lofty, and about 15 miles in circumference. A part of the island, far Erasmus Gower observes, (quoting the author of the Authentic Account of the Embassy to China,) towards the north rises perpendicularly from the sea to a height apparently of 1000 feet, or more. A level then commences, forming what among seamen is termed table land, and extending towards the centre of the island; from whence a conical mountain rises, not unlike in appearance to the Peak of Teneriffe, as seen from the bay of Santa Cruz. Boats were sent to found and examine the shore for a convenient place to land and water. In consequence of their report the Lion flooded in, and came to anchor in the evening on the north side, in 30 fathoms water, one mile from the shore; the bottom black sand with slime; a small rock of the west point bearing south-west by south, just open with the western extremity of the island; a cascade or fall of water emptying itself upon the beach south by east. All the shore from the southern point to the eastern extremity appears to be clear of danger, and deep, except the west point, where there are breakers about two cables' length, or near 500 yards, from the shore. The ship, when anchored, was overshadowed by the dark masts of that portion of the island, whose sides seem to rise like a moss-grown wall immediately from the ocean. On the right the elevation was lefs rapid, and between the rising part and the sea was a flat of some extent, covered with fedge-grafs, interspersed with small shrubs, which being perfectly green, looked from the ship like a pleasant meadow, watered by a stream that fell afterwards from its banks upon the beach. The officers who went ashore reported, that the cakls might be filled with fresh water by means of a long hose, without moving them from the boats. The landing-place thereabouts was also described as being safe and superior to any other that had been examined. From the plain the land rofe gradually towards the central mountain, in ridges covered with trees with penguins, surrounded, on the north, with penguins and albatrosses; one of the latter was brought on board, his wings measured ten feet from tip to tip; but others are said to have been found much larger. The coast was covered with a broad sea-weed several fathoms long, and defervedly by naturalists termed gigantic fucus. Some good fish was caught with the hook and line. The accident of a sudden gulf, by which the anchor was in a few hours driven from its hold, and the ship forced out to sea, prevented the island from being explored as was intended. It is probable, that if the Lion had anchored in twenty instead of thirty fathoms water, the anchor would have held firmly. Some advantage was obtained, however, from coming to this place. The jetio position of those islands in respect to their longitude was ascertained, by the means of several time-pieces, to be about two degrees more easterly than generally laid down in charts. These islands are certainly worthy of a more particular enquiry; for they are not fifty leagues from the general track of vessels bound to China, and to the coast of Coromandel by the outer passage. In war-time, an excellent rendezvous might be fitted there for ships that wanted no other supply than that of water. When circumstances require particular dispatch, it is practicable to come from England to Tristan d'Acunha without stopping.
in the way, and afterwards to the end of the voyage to India or China. These islands are separated by a space of about 1500 miles from any land to the westward or northward of them. They are situated in that part of the southern hemisphere, in the neighbourhood of which a continent, to balance the quantity of land in the northern hemisphere, was once expected to be found; but where it has since been discovered that there is none. The spot where the Lion anchored was determined by good meridional observations, and by accurate time-pieces, to be in S. lat. 37°.

W. long. 157° 40'.

TRISTANIA, in Botany, from *triste*, three, and *latifolia*, or *latifolium*, to stand; in allusion, as we presume, to the ternate disposition of the flowers and their stalks; the three-forked inoffensiveness of this, doubtless very tillulent, genus, being strikingly different from all to which it is nearest allied in the parts of fructification.—Brown in Ait. Hort. Kew. v. 4. 417.


Gen. Ch. Col. Perianth superior, of one leaf, turbinate, in five deep, triangular, nearly equal segments. Cor. Petals five, roundish, inserted in the rim of the calyx between its segments. Stam. Filaments numerous, in five sets, opposite to the petals, and about the same length, mostly palmate; anthers roundish, incumbent. Pist. Germin inferior, turbinate, somewhat angular; style thread-shaped, about the length of the flaments; stigma obtuse. Peric. Capsule roundish, more or less completely coated, of three cells and three valves, the partitions from the centre of each valve. Seeds numerous, minute, angular.


This genus is selected from Melaleuca, (see that article,) whose character however may stand as it does, distinguished by the great length of its flaments. Our 4th, 5th, and 8th species belong to Tristania, with one more already published, and probably several others, known as yet to Mr. Brown alone, defined for the sequel of his Prodrumus. All the true Melaleuca have perfectly sessile, generally crowded, flowers. Having already described the above three species, we shall here merely enumerate them, with the appropriate specific characters of Mr. Brown, as far as he has given any.

1. *T. neriifolia*. Oeleander-leaved Tristania. Ait. n. 1. (Melaleuca neriifolia; Sims in Curt. Mag. t. 1559. M. echinifolia; Ait. Repof. 1814.) Leaves opposite, lanceolate. Stamens from three to five in each set.—Oberved by Mr. Brown, in New South Wales, from whence its seeds were sent to England, about the year 1804, according to Mr. Aiton, who marks it as a greenhouse shrub, flowering from July to September. The flaments are much fewer than in any other species which has come to our knowledge, and their connexion at the base is quite free. The flavour of the plant is said to be bitterish and astringent, scarcely aromatic, in which it differs from the Melaleuca.


Native of New Holland, near Endeavour river. Sir J. Banks. Not as yet introduced into our gardens.


Capule half superior.—Gathered by admiral Phillip in New South Wales, and introduced, from seed, at Kew in 1798, by Sir Joseph Banks. It is a greenhouse shrub, but has not yet flowered. *Aiton.*

4. *T. conferta*. Pittosporum-leaved Tristania. Brown MSS. Ait. n. 3.—Leaves alternate, elliptical, or somewhat lanceolate, acute; the terminal ones crowded. Segments of the calyx acute, leafy.—Found by Mr. Brown in New South Wales, and introduced at Kew in 1805. A greenhouse shrub, flowering from July to September.—We have seen no specimen of this last species, nor have we any account of the colour of its flowers, which are probably white, like those of the two immediately preceding.

TRISTE, in Geography, an island near the coast of America, on the south side of the bay of Campeachy, situated on the west of Port Royal, from which it is separated only by a narrow channel, about 18 miles in circumference. N. lat. 18° 20'.

TRISTE, a name given by the Spaniards to the gulf of Paria; which fee. This gulf, according to Deponis, is twenty-five leagues from E. to W., and fifteen from N. to S., and has anchorage in that whole extent, but its depth varies from eight to thirty fathoms. Upon the coast of Paria its foundings are much less. This gulf is, in fact, a real port, which for excellence and extent wies with the handomest in the world. It has a muddy bottom, except near the coast of Terra Firma, where are shoals and banks of sand. Its waters are as salt as those of the sea, though some have erroneously represented them as fresh. This gulf is difficult of entrance; and the wind must be from the S.E. to enter it with any prospect of safety. The tide is formidable, and has a violence inconceivable by those who are not well acquainted with the great ebbings and flowings of the sea.

TRISTEMA, in Botany, from *triste*, three, and *tristis*, a crown; "because the fruit is surmounted by a triple permanent crown;" a genus mentioned by De Theis, but without reference to any author, nor have we met with any indication of it elsewhere.

TRISTEN, in Geography, a town of Germany, in the county of Feldkirch; 11 miles S.S.W. of Feldkirch.

TRISTO, a word used by Paracelsus, to express what he calls the material fire, lodged in the matter of all the four elements, and exerting upon occasion its influence, under the form of the proper effects of each element.

TRISTONBROUGH, in Geography, a town of Stafford county, in the state of New Hampshire, containing 759 inhabitants.

TRISTRA, TRUSTRA, or TRIST, in our old Law-Books, an immunity, by which a man is exenced from attending on the lord of the foret, when he is dispoused to chase within the forest; so that he cannot be compelled to hold a dog, follow the chase, nor stand at the place appointed, which otherwise he might be, under pain of amercement.

"Sint quieti, &c. de chevagio, homedenny, buckitet, et tritis, et de omnibus misericordiis, &c." Privileg. de Semplingham.

TRISULA, in Hindoo Mythology, the name of one of the commonest attributes of the Hindoo deity Siva. In pictures of him, it is represented as a tridented implement, similar to that seen in the hands of the Neptune of the West. The feet of Hindous who are Saivas, that is, exclusive worshipers of Siva as the deity, maintain that the Trisula is symbolic of S.E. of his trident of powers; meaning that he comprehends those of creation, preservation, and destruction. Others explain...
explain the Trisula as allusive to Siva's supremacy over the
three worlds: or earth, heaven, and hell: a mysterious triad,
forever indicated by the compound trisyllable Bhur-
bhuvanashca, of which see under the article Om

The word Trisula means, in the Sanscrit tongue, three-
pointed. In the west of India, it is sometimes called tri-
phala; and hence, connected with other coincidences, Mr.
Wilford (Af. Ref. vol. iii.) considers "the Jupiter Tri-
physius of the Panchman islands to be no other than Siva holding a
triphalal, he being also represented with three eyes, to de-
note a triple energy; as Vishnu and Prithvi are severally ty-
pified by an equilateral triangle, and conjointly, when their
powers are supposed to be combined, by two such triangles
interflecting each other." The mysterious properties of the
triangle, or cone, with its apex upward or downward, and of
the two intersecting triangles, are noticed in our articles LINGA,
Om; Parvati, Pavaka, Siva, Vishnu, and others thence
referred to. The intersected equilateral triangles, mentioned
by Mr. Wilford as typical of Vishnu and Prithvi, have an
allusion in natural philosophy to the influence of humidity
on the earth; Vishnu representing the aqueous principle of
nature, and Prithvi the material, or the earth. (See Prithvi
and Vishnu.) Of the resemblance of Jupiter Triphysius, or Triphala, with the three-eyed Siva,
see under his name of Thulokan, which means with three
eyes. Trintra also has a similar meaning.

TRISULLI, a name of the Hindoo deity Siva. He is so
called from bearing the symbol Trisula, or trident. See 
TRISULA.

TRISYLLABLE, TRISYLLABIC, in Grammar, a word
consisting of three syllables.

TRITHEIA, in Ancient Geography, a town of Achaea, in
the southern part, on the river Melas; said to be founded
by Menalippus, son of Trittia, a priest of Minerva, in
consequence of her amours with the god Mars. The prin-
cipal temple of this city was that of the greater gods, who
were annually honoured by feasts similar to those of Bac-
chus. The statue of Minerva, which was reckoned beau-
tiful, was transported from hence to Rome. This town
was one of those which Augustus put into a state of de-
pendence upon Patras.

TRITEOPHYES, a word used by the medical writers of
the ancients, to express a kind of fever, much of the na-
ture of the tertian, and taking its rise from a five-day
interval. .

TRITANY, in Geography, a town of Hindoostan, in
the Carnatic: 18 miles S. of Bonrauzepollam.

TRITCHINGODE, a town of Hindoostan, in My-
fore; 6 miles S. of Sankeriduram.

TRITCHINOPOLY, a town of Hindoostan, in the
Carnatic. It is surrounded with two walls, flanked with
towers, and encompased with a ditch. It was taken by the
British under major-general Lawrence and captain (after-
wards lord) Clive, in 1751, and since that time it has been
made the capital of Madura: 67 miles W. of Tranquebar.
N. lat. 10° 48'. E. long. 76° 45'.

TRITE, τρίτη, in Music, the third musical chord in the
fyllem of the ancients.

There are three strings under this denomination in the an-
cient diagramma, viz. the trite hyperboleon, trite diezeugmenon, and
trite sýnemmenon.

This chord of the ancient tetrachord was so named
from its being the third from the note; and hence we
might call it the anti-penultimate. It was otherwise, in
some tetrachords, called parypate. See Diagram and
INTERVAL.

TRITE Diezeugmenon, in the Greek Music, was the anti-
penultimate note of the diezeugmenon tetrachord, and an-
swers to Guido's b, f, e, ut.

TRITE Hyperboleon, was the anti-penultimate note of
the hyperboleon tetrachord, and answers to Guido's f, e, ut.

TRITE Syvnetemenon, was the anti-penultimate note of
the sýnemmenon tetrachord, and answers to Guido's b, f, ut.


TRITHEISM, or TRITHEISTS, in Ancient Geography, a town of
Afia, in the Troade.

TRITHEISM, the opinion of the Trithistic, or the heresy of
believing three Gods.

Trithemius confins in admitting not only of three per-sons
in the Godhead; but of three subsistances, three effences or
hypostases, and indeed three Gods.

Several people, out of fear of giving into Trithemius, have
become Sabellians; and several others, to avoid Sabel-
lianism, have commenced Triteists; so delicate and subtile is
the diifinction.

In the famous controversy between Dr. South and Dr.
Sherlock, the firit is judged to have run into Sabellianism,
by a too rigorous assertion of the unity of a Godhead; and
the latter into Trithemius, by a too absolute maintaining
of the Trinity.

John the Grammarians, furnamed Philoopus, lover of
labour, is held the author of the fect of the Triteists, under
the emperor Phocas; at least it appears that he was a zeal-
ous advocate of it.

The chief of this sect, according to Moffheim, Eccl.
Hist. vol. i. was John Afcufnate, a Syrian philosopher,
and a Monophyfite. He imagined in the Deity three na-
tures or subsistances, absolutely equal in all respects, and
joined together by no common effence.

TRITHEIT,E, TRITHEISTS, in Church Hiflory, a name
given to fuch hereticks, as admit not only of three persons,
but of three distinct subsistances and natures, in the Holy
Trinity. See TRINITY and TRITHEISM.

TRITHEMISUS, John, Abbot, in Biography, was born
in the year 1442, at the village of Trittenheim, near Treves,
whence he took his name. Having finifhed his course of
education in the universities of Treves and Heidelberg,
he was chosen abbot of the Benediftine monastery of Spanheim
in 1483, which he superintended for twenty-two years, and
when he withdrew from it, in consequence of a faction of the
monks, he was placed by the bishop of Wurtzburg at the
head of a monastery in that city, where he died in 1518, at
the age of seventy-six. "Trithemius," says one of his
biographers, "was a perfon of vaft erudition, a philo-
pher, mathematician, chymift, poet, historian, and divine,
and conuenient in the Hebrew, Greek, and Latin lan-
guages." His works, written in Latin, are numerous,
but thofe in biography and hifory are held in the highest ef-
fimation. His writings on piety and morality chiefly relate to
the monafic and facerdotal life, miracles of faints, and fuch
topics. His philofophy bore the myflic character of the
age in which he lived. His "Steganography, or the Art of
writing in Cyphers," containing fome inquifitive characters
ignorantly taken for tallfman, subjected him very unjuftly
to the charge of magic. Upon the whole, " he appears to
have been a perfon whose great learning was confiderably
tinctured with credulity, and whose industry was superior

TRITHING. See TRITHIN.

TRITICUM, in Latin, and Old Latin name, very sat-
isfactorily derived, by Varro himself, from tritum, ground or
rubbed, because of the manner in which its grain is prepared
for the food of mankind. Wheat, or Wheat-gras.—Linn.
Gen.
TRITICUM.


Gen. Ch. Cal. Common receptacle zigzag, toothed, elongated into a spike. Glume tranverse, containing about three or more flowers, and consisting of two ovate, bluntish, concave valves. Cor. of two nearly equal valves, the rafe of the calyx; the outermost tumid, obtuse with a point, or awn; the inner flat. Nectary of two acute scales, gibbous at the base. Stam. Filaments three, capillary; anthers pendulous, oblong, cloven at each end. Pîen. Germen superior, turbinata; styles two, capillary, reflexed; stigmas feathery. Peric. none, the corolla embracing the seed till it is full-grown and ripe, then letting it go. Seed solitary, ovate-oblong, blunt at each end, convex at the outer side, marked with a longitudinal furrow on the inner.

Eff. Ch. Calyx of two valves, solitary, tranverse, manyflowered, on a zigzag, toothed receptacle.

We have already adverted to the difficulty of distinguishing this genus from Secale; see that article. They both agree in the tranverse, or lateral, position of their bivalve calyx, by which position the rafe of each spikelet is parallel to the common receptacle, not, as in Lolium, contrary. The greater number of flowers in Triticum, which are only two in Secale, is the only technical distinction. The outer valve of the corolla of the present genus is often terminated by a long awn; but this appendage varies, even in the same species.

Section 1. Root annual.
1. T. aestivum. Summer Wheat. Linn. Sp. Pl. 126. Willd. n. 1. Ait. n. 1. Bauh. Pin. 21. ("T. arilatum; Blackw. Herb. t. 40. f. 4. 5.:—T. loculcis quadrifloris, haii sub floribus, glumis exterioribus floribus arilatis; Hall. in Com. Nov. Goett. v. 5. t. 1. f. 1")—Calyx fourflowered, tumid, smooth, imbricated, awned.—Supposed to be a native of Siberia. It is found in the spring, and produces a speedy but uncertain crop. We have never seen an authentic specimen, nor are we at all certain that what has generally been taken for this species is any thing more than a variety of the following:

2. T. hybernum. Winter, or Lemmas, Wheat. Common Cultivated Wheat. Linn. Sp. Pl. 126. Willd. n. 2. Ait. n. 2. Ehrh. Pl. Off. n. 151. Gaertn. f. 1. (T. vulgare; Hoff Grum. Aufr. v. 3. 18. t. 26. T. hybernum, arilis carens; Tourn. Infl. 512. t. 292. T. spicis muticæ; Ger. Em. 65. Siligo spicis muticæ; Lob. Ic. 25.)—Calyx four-flowered, tumid, even, imbricated, abrupt, with a short compressed point.—Native country unknown. Cultivated in various parts of the world; being found in autumn, it flowers the winter, and ripens seed in the following summer, so that it may be reckoned biennial. The root consists of downy fibres. Stem one or more, erect, straight, from three to five feet high, round, jointed, smooth, leafy. Leaves linear, pointed, flat, many-rubbed, rough, entire, rather glaucous. Sipula jagged, bearded. Spike solitary, or two or three inches long, dense, two-ranked, smooth, joints of the common axis bearded. Glumes fringed. Calyx in the upper part of the spike with a more elongated point. Corolla of the upper spikelets frequently more or less awned.

Under this most important and familiar species are comprehended a great number of varieties, the knowledge and history of which are more peculiarly the province of the agriculturist, and will be treated of under the article Wheat. By the botanist they have not been sufficiently investigated, either as varieties or species. Some of them appear entitled to the latter denomination; particularly the White Wheat, T. album, Gaertn. f. 2, whose leaves obtuse calyx, and the long awns of its corolla, seem to indicate a specific difference. This last character indeed occurs in many of them; see Tourn. t. 293. Some of the reputed species of Linnaeus are less decisively marked. The determination of these points, with the respective qualities of each species or variety, might very advantageously occupy the attention of some accurate rufic botanist, continually on the spot, by whose labours the question might be set for ever at rest, and probably a most important service rendered to scientific agriculture. Not to embroil the subject, we shall not, with insufficient materials, enter upon it.

3. T. compositum. Many-spikeled Wheat. Linn. Suppl. 115. Willd. n. 3. (T. spicis multiplici; Bauh. Pin. 21. Ger. Em. 66. Morif. fect. 8. t. 1. f. 7.)—Spike compound; spikelets crowded. Corolla awned.—Native of Egypt; cultivated at Naples. The glumes are smooth. Awns three or four inches long. This is probably a variety of the last, rather than, as Linnaeus says, of T. aestivum.


5. T. polonicum. Polith Wheat. Linn. Sp. Pl. 127. Willd. n. 5. Ait. n. 4. Hoff Grum. Aufr. v. 3. 21. t. 31. Pluk. Phyt. t. 231. f. 6. Morif. fect. 8. t. 1. f. 8.—Calyx three or four-flowered, pointed, naked, lanceolate like the corolla, which is compressed, with a long awn.—The native country of this like-wise is unknown. It was cultivated here in the latter part of the seventeenth century, for curiosity at least, and is still seen in botanic gardens, though not much regarded by the farmer, being easily laied by rain. That this is a distinct species there can be no doubt. The strength of the whole plant, its large ears, and long, narrow, feebly tumid glumes, readily distinguish it at first sight. Linnaeus defines the Triticum of T. hybernum having a two-flowered calyx, the character of Secale; but Haller affirms the preence of one, if not two, imperfect florets.

6. T. Spelta. Spelt Wheat. Linn. Sp. Pl. 127. Willd. n. 6. Ait. n. 5. Ehrh. Pl. Off. 432. Hoff Grum. Aufr. v. 3. 21. t. 30. (Zeä dicoccos five major; Bauh. Theatr. 412. t. 413. Z. spicis muticæ dicoccos, vel major; Morif. fect. 8. t. 6. f. 1.)—Calyx imperfectly four-flowered, elliptical, obliquely pointed, shorter than the long-awned corolla.—The origin of this species is likewise unknown, nor is its specific character satisfactory. The glumes are very glaucous. It is chiefly cultivated in the south of Europe, and is given to horses in Spain, when barley is scarce. The bread it makes is of a dry quality, but no kind of flour is better for pastry.

This appears to us a mere variety of the last, with downy glumes, and longer awns to the florets. Looping's specimens are of humbler growth than those of the preceding that have in general fallen under our inspection, but there is no specific difference between them.

12. T. maritimum. Sea Wheat-grass. Linn. Sp. Pl. 128. Willd. n. 14. Vahl Symb. v. 2. 26. (Gramen loliaceum paniculatum maritimum; Bauh. Theatr. 130. Schenckz. Agrost. 274. t. 6. f. 5.)—Spikes panicked. Spikelets many-flowered, compressed. Florets linear-lanceolate, ribbed, pointed, awnless. Stem branched.—Native of the sea-coasts of the south of France, Greece, and Egypt. Root annual, of many woolly fibres. Stems branched from the base, leafy, a foot high, more or less bent at the joints, and partly decumbent; often purplish, as well as the sheaths of the leaves, and branches of the panicle. Glumes long and tapering, narrow, flat, articulated. Spikelets broader than the leaves, but much shorter. Spikelets many-flowered, compressed. Florets about three inches long, forked, with many spreading, spikeled, triangular, smooth branches. Spikelets alternate, slightly flaked, half an inch long, smooth, of about eight crowded florets, each strongly keeled, and acutely pointed, smooth, with a strong marginal rib at each side. Calyx-valves furrowed, nearly equal. Some synonyms referred to this, belong to the following. That of Boccone, t. 95, is at least doubtful.

13. T. loliaceum. Dwarf Sea Wheat-grass. Fl. Brit. n. 4. Engl. Bot. t. 221. Willd. n. 17. Knappe t. 114. Gramen pumilum, loliaceum simile; Raul Spreng. 295. G. loliaceum exile durium; Sm. Rel. Rudb. 13. G. exile durifolium maritimum, siliquis circumvolutis, veluti junceus, brevibus; Pluck. Phyt. t. 32. f. 8. G. parvum marimum, spica loliaceae; Morif. f. 32. t. 2. f. 8.)—Spikes mostly simple, unilateral. Spikelets many-flowered, compressed. Florets elliptical, obtuse, awnless, with marginal ribs. Stems branched.—Native of the sandy sea-beach, on the east and south coasts of England, as well as in Italy. We have it from a Piedmontese botanist, under the name of T. unilaterale. Root annual. Stems rigid, spreading, smooth, from three to five inches high. Leaves tapering; involute when dry. Spike erect, mostly simple, linear, rigid, of from nine to twelve alternate, slightly flaked, two-ranked spikelets, turned most to one side; in very luxuriant, or cultivated, specimens the lower part of the spike is branched. This plant is very nearly allied to Poa rigida, nor is the position of their spikelets difsimilar. It serves however to connect our last species of Triticum with the following one.


17. T. repens. Creeping Wheat-grafs. Couch-grafs. Linn. Sp. Pl. 128. Wildl. n. 13. Fl. Brit. n. 2. Engl. Bot. t. 909. Leers 45. t. 12. 3. Knapp t. 111. Mart. Rulst. t. 124. Fl. Dan. t. 748. Schreb. Gram. part 2. 24. t. 26. (Gramen caninum vulgaris; Morif. feet 8. t. i. f. 8.)—Calyx awl-shaped, many-rubbed, five-flowered. Florets pointed. Leaves flat. Root creeping.—But too common throughout Europe, in all kinds of cultivated ground, flowering in summer and autumn. The long and deeply creeping roots are of all things most difficult to extirpate. Yet when collected in sufficient quantity, they afford wholesome nourishment for cattle, and in some countries have been made into bread in times of scarcity. The flims are two feet high, flender. Herbage green, except in a maritime variety, the γ of Fl. Brit., T. junceum of Relhan, T. intermediate of Hoft Gram. Ausfr. v. 2. 23, which is glaucous, with pungent leaves, and posibly desirous to rank as a separete species. The leaves of our common kind spread horizontally, often all one to a fide, by which this species becomes conspicuous among bushes or hedges in autumn. Spikes two or three inches long, much smaller in every part than those of T. junceum. Florets from five to eight, either simply pointed, or furnished with awns, which vary in length, but are scarcey ever equal to the glumes.


21. T. fcabrum. Rough New-Holland Wheat-grafs. Brown n. 1. (Feltuca scabra; Labill. Nov. Holl. v. i. 22. t. 26.)—Spikes elongated, lax. Calyx lanceolate, ribbed, pointed, many-rubbed, half the length of the corolla. Florets rough, taper-pointed, shorter than their awns. Leaves flat, rough, with smooth fheaths.—Native of New South Wales, and the Cape of Van Diemen. Root apparently perennial, with thick downy fibres, not creeping. Stems flender, erect, eighteen inches high, smooth. Leaves narrow, hairy. Florets from five to ten, in fefile, alternate, rather diftant, upright, oblong spikelets, from an inch to an inch and half in length.

22. T. peclinatum. Peclinate New-Holland Wheat-grafs. Brown n. 2. (Feltuca peclinata; Labill. Nov. Holl. v. i. 21. t. 25.)—Spikelets two-ranked, horizontally divaricated. Calyx awl-shaped, pointed, about six-flowered. Awns shorter than the florets. Leaves flat, ciliated.—Found by Labillardiere, in the illand of Van Diemen. The root is fibrous, prehumin to be perennial. Stems numerous, tufted, erect, hairy, a foot or more in height; leafy below; downy upwards. Leaves narrow, spreading, hairy and fringed, acutely pointed. Spikes solitary, erect, ovate-oblong, flat, two-ranked, two or three inches in length, of a dozen or more alternate, rather crowded, feftile spikelets, each near an inch long, in which the flowering fefion spread horizontally, but infubsequently become refted. The calyx-valves are flender, fomewhat unequal, pointed, but not awned, rather shorter than the florets, which are rough, ribbed, and furnished with ftraight awns, whose length, however, is les than that of each correponding glume. The inner valve of the corolla is elliptic-lanceolate, fringed with fairs. TRITNU, or TRIYETNU, in Hindoo Mythology, a name of Surya, the Hindoo regent of the Sun. The word means three-bodied. See SURYA AND TRIMUHT.

TRITOMA, in Botany, so named by Mr. Ker, late Gawler, from tri, three, and tom, to cut, whence comes the adjective trimus, cut, or fit for cutting; in allusion to the three fharp angles of the leaves. — Ker in Curt. Mag. Q q 744.
TRI


Gen. Ch. Cal. none. Cor. of one petal, inferior, cylindrical, even, with five hollow, regular, marginal teeth. Stam. Filaments fix, inserted into the receptacle, thread-shaped, simple, straight, projecting beyond the corolla, three alternate ones longer than the rest; anthers roundish, two-lobed. *Pisg*. German superior, roundish; style of the shape and length of the longer flowers; stigmas acute, somewhat downy. *Peric*. Capsule ovate, bluntly triangular, of three rather rigid valves, and three cells. Seeds numerous, smooth, crowded, in two rows, angular.

Eff. Ch. Corolla tubular, of one petal, with five marginal teeth. Stamens prominent, straight, inserted into the receptacle; three intermediate ones longest. Capsule ovate, of three cells, with many angular smooth seeds.

The present genus is well distinguished from *Aletris*, as well as from the *Veltheimia* of some botanists; being, as its author observes, nearer in character to *Aloe*; from which, however, it differs greatly in its leaf succulent habit, and more absolutely monopetalous *corolla*; but especially in the long, prominent, unequal, straight, not ascending, *flamens*, and more firm, or harder, *capsul*. The insertion of the *flamens* into the receptacle, not into any part of the *corolla*, to lay nothing of other characters, or of the different habit, essentially distinguishes this from the two other above-mentioned genera. (See all in their proper places.)

When habit functions such a division of genera, we must, especially in a very natural order of plants, like the present, be content with technical characters which might otherwise seem too flight. *Blandfordia*, Sm. Exot. Bot. v. 1. 5. t. 4. is distinguished from all the above by its brilly *feeds*, fructified upwards, in a prismatic *capsul*.


2. T. *media*. Leffer Orange-flowered *Tritoma*. Curt. Mag. t. 744. Ait. n. 2. Redout. Liliac. t. 161. (Aletris *farmentos*a; Andr. Repol. t. 54.)—Leaves smooth at the edges and keel. *Corolla* cylindrical-club-shaped.—Native of the Cape of Good Hope, from whence it is said to have been introduced in 1789, by Mr. Williams, nursery-man, of Turnham Green. As hardly as the last, but flowering either in winter or the early spring, so that a frame, or greenhouse, is requisite to the plant in perfection. It is smaller than the preceding, with a glaucous tinge on the *leaves*, whole edges and keel are perfectly smooth. *Stems* a foot and half or two feet high. *Flowers* sometimes elegantly tipped with green.

3. T. *pumila*. Late Orange-flowered *Tritoma*. Ait. n. 3. Curt. Mag. t. 764. (Veltheimia pumila; Willd. Sp. Pl. v. 2. 182.)—Leaves two-ranked, roughish at the edges and keel. *Corolla* cylindrical at the base; bell-shaped above.—Native of the Cape, from whence it was sent by Mr. Maffon to Kew, in 1774. It flowers late in autumn, and forms as hardy as the others, but is smaller than the last. The *flowers* are of an uniform orange, and distinguished by their bell-shaped, or globose, limb. *Leaves* not at all glaucous.

*Tritoma*, in Entomology, a genus of the Coleoptera order of insects; the characters of which are, that the * antennae* are clavated or club-shaped, the club being perforate, and the anterior palpi or feelers hatchet-formed. It has seven species, as follow.


Glarrum. Smooth, black, with pitchy antennae and feet. Found in Sweden.


Morgo. Black, silky, with antennae and feet of the same colour.

Sericum. Blackish, silky, with feet teelaceous. Found in Germany.

Collake. Black, with the fides of the thorax and abdomen red. Found in New Holland.

*Triton*, in Ancient Geography, a marsh of Africa Propria, in which is the source of a river of the same name; furnished by Pliny Pallantius. This lake was 20 leagues in length from E. to W., and about fix leagues wide; and it contained several islets. The mouth of the river was in the Mediterranean, in the gulf of the Leffer Syrtis. Herodotus mentions this river.—Allo, a river of the isle of Crete. Near its source was a temple, dedicated to Minerva Tritoniana.—Allo, a town of Africa, in Libya.—Allo, a town of Greece, in Bocotia.

*Triton*, in Mythology, a sea demi-god, held by the ancients to be an officer, or trumpeter, of Neptune, attending on him, and carrying his officers and commands from sea to sea.

The poets and painters represent him as half man, half fish, terminating in a dolphin's tail, and bearing in one hand a sea-shell, which served him as a trumpet.

Some of the ancients make him the son of Neptune, and the nymph Salacia; Hesiod, of Neptune and Amphitrite: Numenius, in his book De Piscationibus, makes him the son of Oceanus and Tethys; and Lycophron, the son of Nereus.

But though Hefiod and the mythologists only speak of one Triton, the poets have imagined several; giving some of them for trumpeters to all the sea-gods, particularly to Neptune and Venus; accordingly they were frequently introduced on the ancient theatre, and in the nauchamia.

In effect, the Tritons not only officiated as trumpeters in Neptune's retinue, but were also supposed to draw his chariot, i.e. the sea-shell in which he rode over the waters: as we find in Virgil, *Aeneid*, x. 209; Ovid, Metam. l. 10. 333; and on a medal of Claudius.

The fable of the Tritons, no doubt, took its rise from what are called the sea-men, or mermen; for that there are such things as sea-men has been believed in many ages. See Mermaid and Sea-Cow.

The poets ordinarily attribute to Triton the office of calming the waves, and of making tempests cease. Thus, in the first of the Metamorphoses, we read that Neptune, defining
to recall the waters of the deluge, commanded Triton to find his trumpet, at the noise of which the waters all retired.

Thus Ovid:

"Cœrœulum Tritona vocat, conchaque fonanti
Inspirare jubet, flœtœque flumina signo
Jam revocare dato, &c."

And Virgil:

"Huc venit immannis Triton, et cœrœula concha
Exterrens freta: cui laterum tenus hîpîda nanti
Frons hominem praefert, in Prittin definit alvus."

Of Triton, as connected with the Argonautic expedition, Herodotus gives the following account. Speaking of the river Triton, which discharged itself into the lake Tritonis, where was an island called Phila, he says it was believed that the island must have been inhabited by the Lacedemonians; and he adds, it was reported by tradition, that when Jafon had built at the foot of Mount Pelion the ship which was called Argo (see Argonautic), and had flowed in it a blood, and a tripod of brahs, he undertook the voyage to Delphi by the tour of Peloponnesus; and that, taking his route by the promontory of Malea, the north wind drove him upon Libya, where he found his ship run aground in the lake Tritonis; and while he was endeavouring to extricate himself, a Triton appeared to him, and told him, that if he would give him the tripod he had in his ship, he would show him how to get clear of this danger; upon which Jafon, agreeing to the proposal, gave him the tripod, which the Triton laid up in his temple, and foretold Jafon and his crew, that when one of their defendants should carry off that tripod, it was fixed by fate that there should be one hundred Greek towns built upon the lake Tritonis; in fine, that the Libyans being informed of this oracle, kept the tripod carefully concealed. The explication given of this fable is, that the Triton who appeared to the voyager under a human form was a prince who reigned in that place, whom Pindar and his scholiast name Eurypilus. He gave good instructions to the heroes to avoid the sand-banks which lie in and about the Syrtes. This, says Banier, is the whole mystery; the prediction which they put in his mouth having only been invented after the event; that is, after the Greeks were settled in that part of Africa, and had built cities there. Our heroes, in gratitude for the signal service done them by Eurypilus, made him a prefent of the above-mentioned tripod. Diodorus, who also speaks of it, says there was upon the tripod an inscription in very ancient characters, and adds, that it was preferred to the latest times, among the people called Hesperitans, in Cyrenaicum.

Triton, in the Linnaean System of Natural History, a genus of the Mollufca order of worms; the characters of which are, that the body is oblong, the tongue spiral, the tentacula twelve in number, and bipartite, fix on each side, and the three hinder ones cheliferous. There is one species, viz. T. littoroc, which is found in the clefts of submarine rocks.

Triton Avis, in Ornithology, a name under which Nie- remborg has described a bird of the West Indies, famous for its fine fingering, and found in Hispaniola: it is said to have three different notes, and to be able to give breath to sounds of all three kinds at the same time: it is also said to be a very beautiful bird. Ray.

TRITONEA, or Trigionia, in Mythology, a name given to Minerva, derived from the river Triton, near which she was born, and where she had been seen for the first time.


Gen. Ch. Cal. Spatha inferior, shorter than the corolla, of two oblong, membranous, pointed or toothed valves. Cor. of one petal, superior; tubular at the base; swelling in the throat; limb divided to its very bottom into fix, nearly regular and equal, segments, each of which, in the lower part, is more or less contracted into a claw. Stam. Filaments three, inserted into the tube, unconnected with the throat, variously directed, curved, shorter than the limb; anthers oblong, curved. Pijl. German roundifh; fyle thread-shaped, erect; fligma three, linear, recurved, spreading. Petir. Capuile roundifh-ovate, membranous, tuftid, of three cells and three valves. Seeds numerous, globofe, fimple, neither winged nor pulpy, rather small.


The characters of this genus are confefcil very difficult to define; yet its intelligent author confiders the species to be easily discernible by their common habit. The corolla in fome is quite regular, in others more or less irregular, yet never in a very frong or evident degree. "The bulb is solid, ovate and defpreeid, or roundifh with a point; its coats reticulated; the outermost spotted. Leaves graffy, broadifh; very rarely cripped at the edges. Flowers feveral, various in the different species; in fome their limb is large, bell-shaped, regular, reverfed, the segments broad, the tube fhort, with an inflated fpreading throat; in others the corolla is of a smaller fize, with a longer tube, a turbinatfe throat, the segments oblong, little dilated, defpofed fo as lightly to imitate a two-lipped flower, one of them broader than the reft; in others again the segments are linear-oblong, fpreading in a wheel-shaped manner, equal, the throat but fightly dilated, and the tube very long. The flammes of the two-lipped fpecies are afceding, of the regular reverfed ones ereft; anthers in the wheel-shaped flowers contiguous, incumbent."


2. T. viridis. Green-flowered Tritonia. Ait. n. 2. Curt. Mag. t. 1275. (Gladiolus viridis; Ait. ed. 1. v. 3. 481. Vahl Enum. v. 2. 96. Ker Ann. of Bot. v. 1. 231.)—Stalk triangular, with membranous angles. Segments of the corolla lanceolate, shorter than the tube; five of them afceding; one deflexed.—Found at the Cape by Mr. Malloin, who fent it to Kew garden, in 1788, where it blooms in July. The leaves are linear-lanceolate, with a frong mid-rib. Spike zigzag. Flowers not numerous, pale green, with a purplish tinge, especially in the tube, and
TRITONIA.

at the back of the limb. We should suppose these flowers, by their colour, to be fragrant at night.


4. T. renata. Trumpet-flowered Tritonia. Ait. n. 3. (T. capensis; Curt. Mag. t. 618. and t. 1531. Gladiolus roccus; Jacq. IC. Rar. t. 261. Willd. Sp. Pl. v. 1. 217. Vahl Enum. v. 2. 110.)—Sheath taper-pointed. Upper segment of the corolla broadest; throat funnel-shaped; tube twice the length of the limb.—Native of the Cape. Sent to Kew by Mr. Maffon in 1793, where it flowers in June and July. The stem is leafy. Leaves green, many-rribered, taper-pointed. Flowers spied, three or four inches long, flesh-coloured, or buff with purplish veins; the third lower segments tipped with crimson at the base. The corolla however varies in size as well as colour; see the figures cited.

5. T. longiflora. Long-flowered Tritonia. Ait. n. 4. (Ixia longiflora; Willd. Sp. Pl. v. 1. 203. Redout. Liliac. t. 34. Curt. Mag. t. 256. and t. 1503, Tritonia. Gladiolus longiflorus; Linn. Suppl. 95.)—Segments of the corolla regular, linear-oblong, obtuse; tube thread-shaped, angular and slightly dilated at the top; four times as long as the limb, and fix times as long as the nearly equal valves of the spathe.—Native of the Cape. Introduced by Mr. Maffon in 1774, and now a general favourite in our greenhouses, flowering in the spring. The very long and slender, regular, buff-coloured flowers, often tinged with a rose-colour, sufficiently disinterminate this elegant species. The stem is ever tall and slender, naked except at the lower part.

6. T. Rockenbos. Bending-flowered Tritonia. Ker in Curt. Mag. t. 1503. Ait. Epit. 375. (Ixia paniculata; De la Roche Diff. 26. t. 1, according to Mr. Ker. Gladiolus longiflorus; Thunb. Diff. n. 22.)—Segments of the corolla regular, elliptical, concave, scarcely as long as the flender, deflexed tube. Stamens and style prominent.—Imported from the Cape in 1829, by Meirs. Lee and Kennedy. Nearly akin to the last, to which we should, but for Mr. Ker’s authority, have referred the branched variety, figured by De la Roche.

7. T. lineata. Pencilled Tritonia. Ker Ann. of Bot. v. 1. 228. Ait. n. 5. (Gladiolus lineatus; Salis. Prod. 45. Curt. Mag. t. 487. Redout. Liliac. t. 55. Ixia flagalida &; Willd. Sp. Pl. v. 1. 206.)—Limbo of the corolla thrice the length of the curled tube, bell-shaped; its upper segment largest; outer ones abrupt.—Native of the Cape. Sent to Kew by Mr. Maffon in 1774, but more recently introducted into our greenhouses by way of Holland, flowering in May. The stem is two feet high. Leaves green, with a solitary mid-rib. Spike drooping before the flowers open, which are large, of a straw-colour, tinged with orange, and marked with fine, dark, parallel and branching, veins. Each of the three lower segments has a yellow internal spot near the base. The tube, about half an inch long, fearfully equals the length of the spathe.

8. T. secernens. Dwarf Copper-coloured Tritonia. Ker Ann. of Bot. v. 1. 228. Ait. n. 6. (Gladiolus secernens; Willd. Sp. Pl. v. 1. 219. Vahl Enum. v. 2. 109. Curt. Mag. t. 383. Montbretia secernens; Redout. Liliac. t. 53.)—Limbo of the corolla twice the length of the tube; its upper segment largest; each of the three lower bearing at its base an erect, compressed prominence. Outer valve of the spathe blunt, with three teeth.—Found at the Cape by Mr. Maffon, who sent it to Kew in 1774. It flowers freely in May and June, and increases by offsets. The stem is but a span high. Leaves two-ranked. Flowers tawny; the three lower segments yellow at the base, with a deeper hue of red about the middle.

9. T. flavus. Yellow Tritonia. Ker Ann. of Bot. v. 1. 228. Ait. n. 7. (Gladiolus flavus; Willd. Sp. Pl. v. 1. 218. Vahl Enum. v. 2. 110.)—Limbo of the corolla twice the length of the tube; each of the three lower segments bearing at its base an erect, compressed prominence. Outer valve of the spathe pointed.—Found at the Cape by colonel William Paterfon, who sent it to the famous Countess of Strathmore in 1780. The somewhat broader leaves, pointed spathe, and uniform deep yellow of the corolla, are said in the first edition of Hort. Kew. to differ from this the last.

10. T. refracta. Bent-spiked Tritonia. Ker Ann. of Bot. v. 1. 228. (Gladiolus refractus; Jacq. IC. Rar. t. 241. Willd. Sp. Pl. v. 1. 215. Vahl Enum. v. 2. 109.)—Spikes bent backwards. Flowers erect, recurved. Limbo of the corolla thrice the length of the tube, bell-shaped, two-lipped; its three lower segments small.—Native of the Cape. We have not heard of it in any English garden. The stem is branched, singularly bent, feecily rising above the long, erect, two-ranked leaves. Spikes horizontal, of several flowers, whose three upper segments are purplish, lower yellow or orange.

11. T. flagalida. Sweet-scented Pink Tritonia. Ker in Curt. Mag. t. 581. Ait. n. 8. (Ixia flagalida &; Willd. Sp. Pl. v. 1. 206. Vahl Enum. v. 2. 73. L. hyalina; Redout. Liliac. t. 87.)—Limbo of the corolla bell-shaped, regular; its segments rounded, transparent in the margin below, clove together; one of them gibbous at the base.—Native of the Cape. Sent to Kew by Mr. Maffon, in 1774. The flower is naked, ascending, much taller than the leaves, which are many-rribered, equitant; the outer ones bluntish. Spike reclining, of about half a dozen large, very sweet-scented flowers, whose tube is fearfully half the length of their limb, and whose colours are a mixture of dull pink, with a dirty pellucid white, like wet paper. The claw of each segment is red, with a distinctly defined white membranous border, that of the three innermost segments lying over the others. Style longer than the thermometer, in the two following. The deprecatting name of flagalida is surely not suitable to this elegant species.

12. T. fenzlifera. Open-flowered Orange Tritonia. Ker in Curt. Mag. t. 704. Ait. n. 9. (Ixia fenzlifera; Jacq. IC. Rar. t. 289.)—Limbo of the corolla funnel-shaped, regular; its segments obovate, dentate, transparent in the margin below. Stamens and style reclining.—Native of the Cape; said to have been imported in 1801, by Mr. W. Salibury, of the Sloane-street Botanic Garden. It blossoms in the spring, and differs from the last in having scented flowers, of a deep rich orange-colour; the membranous edges of their segments pink. The corolla is also differently shaped, as in our specific character expresses. The tube is short, fearfully exceeding the spathe. Stem often branched.

in their lower half.—Native of the Cape, and one of the first of its tribe cultivated in the gardens of Europe, where it has always been a great favourite, flowering in spring. The brilliant orange-colour of its corolla, contrasted with the membranous transparence of the lower half of its segments, all close together, has a very striking appearance. We have some doubts whether Miller's t. 239. f. 2. be not rather taken from the foregoing species, which, in the shape and disposition of its segments that figure most resembles.

14. T. deutila. Tall Copper-coloured Tritonia. Ker in Curt. Mag. t. 622. Alt. n. 11. (Isia deutila; Wild. Sp. Pl. v. t. 205. Vahl Enum. v. t. 74. L. crocata, nigro maculata; Andr. Repof. t. 134. l. miniate, nigro maculata; Redout. Lil. t. 89.)—Limb of the corolla regular, widely spreading; its segments imbricated, obovate, solid throughout; the three outermost gibbous underneath. Tube rather shorter than the spatha.—Found at the Cape of Good Hope, by Mr. Maffon, who sent it to Kew in 1774. Allied to the two last, but taller, with still deeper orange-coloured flowers, whose segments have no marginal transparence. The three outermost have a fort of hollow, or depressions, just above the base, marked with a very dark spot, and prominent beneath. Jacquin's Isia miniate is taken by Vahl for a variety of the pretent, deficient of spots; but the figure more resembles our fengrota, n. 12, in the shape and position of the segments of the corolla, though wanting their membranous margin. See the following.

15. T. miniate. Tall Late-flowering Tritonia. Ker in Curt. Mag. t. 609. Alt. n. 12. (Isia miniate; Jacq. Hort. Schoenbr. v. t. 10. t. 24.)—Limb of the corolla funnel-shaped, somewhat two-lipped, reversed; its segments obovate, close, solid throughout. Tube the length of the spatha. Found at the Cape of Good Hope, by Mr. Maffon, who sent it to Kew garden in 1795. It flowers in August, and is the tallest and strongest of this genus, having a branched stem, eighteen inches or more in height. The flowers are scentless, of a rather dull orange-colour; their three lower segments, (turned uppermost by the reversed posture of the flower,) marked at the base with an oblong yellow spot, indicating a degree of irregularity in the corolla. This circumspection does not appear in Jacquin's figure, above quoted, where all the segments have a similar mark. How far such characters are variable in this difficult tribe, requires a longer experience, and more intimate practical acquaintance with it, than we can boast, to decide with certainty. More has been done by Mr. Ker than any other person, to clear up the subject; but a wider range of practical observations and experiments is still wanted, in order to a correct understanding of what makes a permanent species. In the perception of natural genera, this botanist seems to us to display great abilities, whether their technical limitations be, as yet, perfected or not. With respect to colour, and even proportion of parts, in the flowers of this family, Jacquin's reputed varieties of Isia maculata, in the 1st vol. of his Hortus Schoenbrunnensis, are sufficient to drive any botanist to despair.

TRITONUS, in Muffe, a diffusant interval, composed of three tones, two major and one minor; and which is, in practice, called the sharp 4th. This interval on keyed instruments is equal in nominal semitones to the flat 5th: the numerical ratios, however, are not equal; that of the tritonus being only 32 to 45; which is occasioned by the tritonus having only one tone major instead of two semitones major, which the flat 5th contains. See FIFTH.

But the most considerable difference between the flat 5th and the sharp 4th is, that the latter is a major discord, and that the parts are resolved by separation; and whereas the other is a minor discord, and resolved by approximation of the two parts.

The chord of the sharp 4th is only an inversion of the chord of the 4 to the sharp 7th of the key, by giving the discord to the base.

TRITOPATORIA, τριτοπάτης, in Antiquity, a solemnity in which it was usual to pray for children to the Dios τριτοπάτης, or gods of generation, who were sometimes called τριτόποντες.

TRITORIUM, in Chemisty, a vessel generally made of glass, used for the separation of liquors of different densities, as oil and water. Its largest diameter is in the middle, and it terminates with an aperture at each of the two extremities. The lower extremity, the aperture of which is very narrow, is dipped into the mixed liquor, and when it is sufficiently filled, the upper orifice is to be stopped close, by pressing the thumb upon it, by which means the liquor contained will not run out at the lower aperture, when the vessel is raised from the mixed liquor. When the fluids of which this liquor consists have perfectly separated according to their respective densities, by removing the thumb, the heavier fluid will run out at the lower extremity, and the separation will be thus effected. Macquer's Dist. Chem.

TRITTAAU, in Geography, a town of the duchy of Holstein; 20 miles E. of Hamburgh.

TRITTARCHI, τριτταρχοι, among the Athenians, were magistrates who had the command or government of the third part of a tribe. See PHYLARCHUS.

TRITUM PROMONTORIUM, Sebb-a-Rous, in Ancient Geography, a promontory of Africa, at the west entrance of the gulf of Numidia; called by Pomponius Mela Metagonium.

TRITURATION, Tritura, or Tritus, formed from triturare, to thrash; of terra, I swear, rub, or grind, in Pharmacy; grinding; the act of reducing a solid body into a subtile powder, called also fìguratio, pulverisation, &c.

The trituration of woods, barks, minerals, and other hard and dry bodies, is performed by the rotary motion of a pestle in metallic, glafs, agate, or Wedgwood-ware mortars; and in mills, by means of large rollers of hard stone.

The same term is also applied to the comminuting, bruising, and dividing of humid matters into little parts. The trituration of moist bodies is performed in marble or flint mortars, with pestles of wood, glafs, ivory, &c. The word trituration is generally applied to denote the division that is made of several bodies together, to unite them with each other; as, e.g., the extinction of mercury in the operation of Ethiops mineral, and others similar.

Trituration, Boerhaave observes, has a wonderful force to dissolve some bodies, and will render them as fluid as if they were fluxed by the fire. Thus if you grind the powder of myrrh and salt of tartar together, they will dissolve each other. By rubbing new and bright filings of iron in a mortar, with double their weight of clean sulphur, the iron will be dissolved, so as by diluting it with water to afford the vitriolum Martis.

Gold long ground in a mortar with salt of tartar, will yield a kind of tincture; and rubbed with mercury in a mortar of glafs, it entirely dissolves into a purple liquor, and becomes a most powerful medicine.

Dr. Langelotte has written a curious treatise of the great effects of trituration in chemistry, and describes a peculiar way
T R I

way he employed to grind gold, by which, he says, he could render it as fluid as the fire does, and make an aurum potabile by the bare motion of a mill.

This author, in the Philosophical Transactions, mentions his way of grinding gold, and describes two engines, or philosophical mills, for the purpose; with one of which, in the space of fourteen natural days, he reduced a leaf of gold to a dusty powder, and, putting it into a shallow retort, placed in a rapid current of air, he thence obtained, by gradually increasing the fire, and giving it a strong one at last, a very few red drops, which, digested, per se, or with tartarized spirit of wine, afforded a pure and genuine aurum potabile.

The success of this operation the doctor attributes, in a great measure, to the falt of the air, which, in grinding, plentifully mixes and unites itself with the gold.

It has been observed, that there appears to be an error in reducing vegetable matter to the state of impalpable powder; as in this state, both during the processes of grinding and afterwards, the air and light act powerfully upon them, and produce changes, which, although they be not well understood, yet appear to alter the medicinal virtues of the substances.

Trurbation is also used, in Medicine, for the action of the stomach on the food, by which it is fitted for nutriment. See Digestion.

TRIVADI, in Geography, a town of Hindoostan, in the Carnatic. The pagoda forms a citadel; 23 miles S.W. of Pondicherry. N. lat. 11° 42'. E. long. 79° 45'.

TRIVANDOR, a town of Hindoostan, in Madura; 16 miles N. of Nattam.

TRIVATOOR, a town of Hindoostan, in Maravar; 20 miles N. of Trumian.

TRIVATORE, a town of Hindoostan, in the Carnatic; 6 miles S.E. of Arcot.

TRIVELAWARY, a town of Hindoostan, in the Carnatic; 12 miles N. of Trichinopoly.

TRIVEMBAR, a town of Hindoostan, in Maravar; 27 miles N. of Ramanadporem.

TRIVENALORE, a town of Hindoostan, in the Carnatic; 13 miles N. of Tiagar.

TRIVENI, a term in the Sanscrit tongue, said to mean a triad of rivers; a junction of three of the most important streams of Hindoostan being pre-eminently distinguished by this appellation. These are the Yamuna or Jumna, the Ganga or Ganges, and the Saraswati; being, in the mythological mysticisms of the Hindoos, personifications or symbols of their three great goddesses, Lakshmi, Parvati, and Saraswati.

The Hindoo poets, as indeed all their writing priests or philosophers, and even mathematicians, seem to be, call the Triveni the three platted locks; and elegantly breathe this idea into many pleasing allegories. See Radha.

The spot of junction of the three river-goddesses in question, near Ilahabad in Bengal, is extensively esteemed very sacred; and pilgrims resort thither from distant regions to bathe in the purifying trine stream. Of this we have taken sufficient notice under our article JUNCTIONS; and under that of Suicide, an account is given of meritorious self-destruction at this revered spot. See also Sati.

The Triveni has been noticed as a fruitful source of poetical allusion.

We cannot refrain from briefly alluding, in this place, to some supposed coincidences in Irish and Indian mythology, of which see something under our articles Soma and Surya. And we allude to them here in view to the opportunity of faying that poetical traditions existied, and perhaps still exist, in Ireland of a mythological origin and junction of three rivers, reminding us strongly of the Indian Triveni. The Irish rivers appertain to the county of Kilkenny; and our own Spenser has described them so exactly in the style of Eastern hyperbole, that we must invite the reader to turn to our article Kilkenny, where he will find an extract from Spenser descriptive of the mythological origin and junction of the Irish Triveni, that may be almost suspected as of Oriental origin.

TRIVENTO, in Geography, a town of Naples, in the country of Molise, the seat of a bishop, immediately under the pope; 11 miles N. of Molise.

TRIVERAL DIES, in the Roman Calendar, denoted judicial days, or such as were allowed to the prætor for hearing of causes.

They were otherwise called dies fojni, in quibus licet praetori fari tria verba, do, dico, addico.

Of these court-days, the Romans had only twenty-eight in the whole year; whereas with us, one-fourth of the year is term-time, in which three courts constantly fit for the dispatch of business; besides the close attendance of the court of chancery for determining suits in equity, and the numerous courts of alizate and nisi prius that sit in vacation for the trial of matters of fact.

TRIVESPER, in Mythology, one of the epithets of Hercules.

TRIVETICH, in Biography, an English historian of the thirteenth century, was the descendant of a respectable family in Norfolk. Having entered among the Dominicans in London, he studied at Oxford and at Paris; and at the latter place collected from books on the history of the Normans and Franks such passages as related to the English nation, and supplied their defects from the best accounts which he could procure in his own country. In this way he composed his "Annals of the Six Kings of England sprung from the Counts of Anjou," introducing a detail of the most remarkable events that occurred under the Roman pontiffs, the emperors, the kings of France, and other contemporary princes, together with an account of learned men, particularly of his own order, and intending that his work should be a continuation of that of William of Malmsbury. He also wrote various other works, partly containing illustrations of ancient authors, but none of them were printed, except his commentary on St. Augustine's book "De Civitate Dei." Soon after his return from France he became prior of a monastery in London, where he died in 1328, at the age of nearly 70 years. His historical work has passed through several editions under different titles, for which we refer to Aikin's Gen. Brigg.

TRIVAL NAMES, Nomina Trivialia, in Botany, were first used by Linnaeus in his dissertation entitled Pans Sueus, published at Upsal in 1749. The plants there enumerated, with a view to their economical qualities as the food of domestic cattle, are each designated by its generic and specific name. The same measure was adopted in the first edition of the Species Plantarum, published four years after, and was extended subsequently to every department of natural history. Linnaeus originally intended his specific definitions to be used as names; but however comprehensively such might be constructed, they were soon found totally unmanageable for that purpose. He therefore adopted the method of Rivinus, of mentioning each plant by a sort of appellative, in addition to its generic name; not intending, like Rivinus, that such appellative should comprehend the specific definition of the plant, which Linnaeus knew to be impossible. That no such expectation might be formed of these names, and that students might not too much rely on them, as any thing like definitions, he termed them nomina trivalia, as serving for common
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common everyday use. They are now however usually called specific names, in contradistinction to generic ones; the original specific names of Linnaeus being at present more properly termed specific definitions, or differences. Trivial names may convey the essential characters of the several species, as Sagina procumbens and atasola, in which case they are but a repetition, or an anticipation, of the specific differences.

They more usually serve to express some concomitant circumstance, tolerably certain as a distinctive mark of each species, though not in the specific character, such as annua, perennis, or alba, lutea, rubra, &c. Former apppellations of each species, such as Hydropteris and Persicaria, especially if the plants be remarkable for their medical or economical uses, as Cinnamomum, Rhabarbarum and Abshinthium, Nopus, Rapa, &c. are very commodious, though injudiciously laid aside by some reformers. These must always begin with a capital letter, being proper names, not required to agree in gender with the generic name. In zoology, such apppellations of species as we have last mentioned are peculiarly useful, and generally preferred by Linnaeus to all others.

TRIVICARY, in Geography, a town of Hindoostan, in the Carnatic; 20 miles S.E. of Gingee.

TRIVICUM, TRIVICO, in Ancient Geography, a small town of Italy, on the frontiers of the Hirpines and of Apulia. It lay on the Trajan way, at a distance E. of Benevento.

TRIVIDHA, in Mythology, a name of the Hindoo goddes Parvati. The word is said to mean three-fold, the Hindoo goddes correspnding in many points with the triple Hecate of the Greeks.

TRIVIER, in Geography, a town of Italy, in the Trevisan; 7 miles W.N.W. of Trevigio.

TRIVIKERA, or TRIVIKRAMA, in Mythology, a name of the Hindoo god Vishnu. It means the three-deemer, alluding to his having in one of his avatars, or incarnations, deceived a powerful sovereign into a promise of giving him all he could cover in three steps.

TRIVIUM, a term invented in the times of barbarism to express the three sciences that were first learned in the schools, viz. grammar, rhetoric, and logic; and the schools in which these sciences were taught were called triviales.

The quadrivium, to which the scholar next proceeded in his way to the summit of literary fame, comprehended the four mathematical sciences, viz. arithmetic, music, geometry, and astronmony.

TRIUMFETTA, in Botany, named by Plumier, serves to commemorate John Baptitl Triumfetti, of Bologna, doctor in medicine and philosophy, and lecturer at the botanic garden of Rome, which was under his direction. He published there, in 1685, a thin quarto volume entitled Observationes de ortu ac vegetazione plantarum, including descriptions and engravings of several new species. This is an able work, though more frequently quoted for its figures than its philosophy; a very common sale. The author published in 1703 a refutation of some criticisms that had appeared against his book. He died in 1707. His brother, Leolin Triumfetti, likewise professor of botany at Rome, is said to have been well skilful in the knowledge of plants, though he does not appear as an author.—Linn. Gen. 239. Schreb. 321. 832. Willd. Sp. Pl. v. 2. 873. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 3. 145. Plum. Gen. 40. t. 8. Juff. 290. Lamarck Illifr. t. 400. Gertn. t. 111. (Bartramia; Linn. Gen. cd. 5. 184. Lamarck Illifr. t. 400. Gertn. t. 111. —Clas and order, Dodendandria Monogynia. Nat. Ord. Columnariæ, Linn. Tiliaeae, Juff.
Gen. Ch. Cal. Perianth inferior, of five lanceolate, deciduous leaves, with a shortly point just below the summit. Cor. Petals five, linear, obtuse, erect, concave, bent backward just above the base. Stam. Filaments fifteen, equal, afending, awl-shaped, straight, the length of the corolla; anthers simple, roundish, of two cells. Pist. German superior, roundish; style the length of the stamens; stigma in two acute divisions. Peric. Capsule globose, covered all over with hooked prickles, separating into four cells. Seeds one or two in each cell, erect, convex at the outside, angular at the inner.

Eff. Ch. Calyx of five leaves, deciduous. Petals five. Capulce prickly, separating into four parts.

Obf. The supposed want of a calyx in the original Triumfetta is a manifest error, subsequently corrected by Linnaeus; as is likewise, if we mistake not, the dorval point attributed to each petal. Yet Gertner uses the former character to strengthen the difference between Triumfetta and the original Bartramia, though purely of principle of character and habit proclaim their identity. Bartramia therefore, is now retained as the name of a very distinct and elegant genus of Moffs. See Muscr.

1. T. Lappula. Bar Triumfetta. Linn. Sp. Pl. 259. Wildl. n. 1. Ait. n. 1. (T. fructu echino racemoso; Plum. 1c. 253. t. 255. Lappula bermudensis althoizoides (picata, fructu orbiculari majo; Pluk. Phyt. t. 245. f. 7.)—Leaves heart-shaped at the base. Calyx four deciduous. Flowers in densely whorled aggregate spikes.—Native of the West Indies and South America. A shrub four or five feet high, flowering about July and August in our haves, where it was cultivated in Miller's time, but is seldom much noticed, the yellow flowers being small and inoffensive. The leaves are stalked, alternate, several inches broad, roundish, toothed, downy, with three or five shallow acute lobes. Capsule the size of a pea, armed with prominent hooked prickles, which stick to the coats of animals, and are widely dispersed, each capsule splitting when ripe into four parts, lodging solitary seeds. The spikes are terminal, several together alternate.

2. T. glandulosa. Glandular Triumfetta. Forst. Cat. Fl. Arab. Fel. 112. n. 297. Vahl. Symb. v. 3. 62. Willd. n. 2.—Leaves ovato-lanceolate; downy and hoary beneath; their lower ferratures more or less glandular. Flowers axillary, from the upper leaves.—Gathered by Forskall in the middle region of the hills of Arabia Felix. Branches woody, round, villos. Leaves on short stalks, numerous, three inches long; gradually smaller upward, clothed on both sides with soft flary hairs, but greenish on the upper; entire at the base, but otherwise ferrated. Stipulas awl-shaped.

3. T. Bartramia. Currant-leaved Triumfetta. Linn. Sp. Pl. 638. Wildl. n. 3. Ait. n. 2. (Lappago ambova; Rumph. Amboin. v. 6. book 10. 59. t. 255. f. 2.) Lappula bengalensis tetrafermos, ribetii folio, echinis orbicularibus ad foliorum exortis plurimis fimal feffilibus; Pluk. Phyt. t. 41. f. 5.—Leaves acutely lobed and toothed; entire at the base; roughish on both sides. Flowers racemo-me, partly aggregate; the lower ones axillary.—Native of the East Indies. The leaves are roughish to the touch, not downy. We are not certain of having seen authentic specimens, Linnaeus having been very superficially acquainted with the species of this genus. Our's has but four seeds in each capsule.

lobed, pointed; softly downy on both sides. Stem erect.

—Native of the island of Mauritius. We have a specimen from thence, given by Thouin to the younger Linnaeus, which we conceive must be Vahl's plant, though, being in feed, the inflorescence has a racemose appearance, the floral leaves having perhaps fallen off. The stem is round, downy. 

Leaves alternate, flaked, two or three inches long, more or less evidently five-ribbed, unequally ferrated, clothed with soft flaky hairs on both sides, but much of the moll copiously on the under; the base is undivided, not heart-shaped. 

Stipules lanceolate, tapering, fringed, of a rufy hue. Flowers from the bifoms of the upper leaves, according to Vahl. In our specimen, which answers in other respects to his description, the capsule is smaller than a pea, form compound, terminal, interrupted clufers; their partial flarks aggregate, deflexed, from a quarter to half an inch long. The prickles of each capsule are copiously barred with minute, reflexed, pale hairs.


Prodr. 35. Wildl. n. 5. — Leaves round-fifh-headed, obtufes, flightly three-lobed; very downy beneath. Stem procumbent. —Native of the Society ifles. Our specimen is from Otakeite, gathered by the younger Forrer. The stem is woody, round, downy and hoary; the younger branches leafy. Leaves about the size and fhape of thofe of a gooseberry, bluntly ferrated, usually three-lobed, on long downy flalks; their upper fide green, nearly even, clothed with ferrated, fimple, deciduous hairs; the under paler, covered with soft foky hairs, and reticulated with prominent veines. Of the flowers or fruit nothing is mentioned, nor does the specimen before us fhow traces of either.


Symb. v. 3. 63. Wildl. n. 6. — Leaves three-lobed, acute; smooth above. Panicle terminal, compound, hairy. — Found by Von Rohr, in the Weft Indian ifland of St. Martha. Stem shrubby. Leaves three or four inches in length and breadth, uneven-ribbed, unequally ferrated; three or five of the lowermofl ferratures glandular; the base rather heart-shaped; the extremity divided into three ovate, dilating, pointed lobes: the under side is clothed with very minute flary pubefcence, and its ribs with long flattered hairs. 

Paniclfs moll fhy when young. Panicle diffufe, with alternate, twice or three forked, branches, molt hairy in the lower part. Flowers small, flaked, solitary at the forks of the panicle, but otherwife aggregate. Calyx hoary. Vahl.

7. T. fenniriloba. Mallow-leaved Triunfetta. Linn. 

Mant. 73. Wildl. n. 7. Ait. n. 3. Jacq. Amer. 147. 

Hort. Vind. v. 3. 41. t. 76. (T. n. 2; Browne Jan. 

233.) — Leaves divided half way down into three lobes. Panicle terminal, compound, downy. —Native of the Weft Indies.Introduced at Kew in 1773, by John earl of Bute. It flowers in the ifowe in July. The stem is shrubby, fuffy. Leaves clothed on both fides with fine, foft, fily hairs. 

Flowers yellow, not many together, in more or less compound terminal panicles. Browne fays, the leaves, ftepped for fome time in water, give out a copious clear mucilage; and that the fibres of the bark ferve, in the inland parts of Jamaica, to make ropes, &c. We do not by any means understand Linnaeus's comparifon of this ifpecies to T. Lappula. He had no authentic specimen of either.

8. T. grandiflora. Large-flowered Triumfetta. "Vahl 

Eclog. v. 2. 34." Wildl. n. 8. — "Leaves ovate, undivided, somewhat heart-shaped, ferrated, rather hairy; the floral ones lanceolate. Branches hairy." — Native of the island of Montferrat. Carolla twice or thrice as large as in any other ifpecies with which Vahl was acquainted.

9. T. macrophylla. Large-leaved Triumfetta. "Vahl 

Eclog. v. 2. 34." Wildl. n. 9. "Leaves ovate-heart-shaped, undivided, unequally ferrated, pointed, downy; glandular at the base." —Native of South America. Like T. Lappula, but having a calyx, Vahl judged it to be a different ifpecies. We have already expressed our difoifbelief of the want of a calyx in any ifpecies of this genus. Plumer diffirinctly reprefents one in his generic figures, taken from T. Lappula itself. The macrophylla is laid to differ from what we shall now defcribe, in the fhape, as well as downy,

T. rhombifolia. Rhomb-leaved Triumfetta. Swartz 

Ind. Occ. 863. Wildl. n. 10, misfeple. (T. rhomboidea; Jacq. Amer. 147. t. 90.) — Leaves rhomboid, flightly hairy; the uppermoft ovato-lanceolate, nearly fefille. 

Flowers in axillary tufts. —Native of dry, watery, bushy places in Jamaica, and other parts of the Weft Indies. The stem is shrubby, two or three feet high, crefet, branched, downy. Leaves contracted and entire at the base; the lower ones rhomboid, and somewhat hexagonal, an inch and half long, on fidesfalks nearly of their own length; all rugofe and more or less hairy. 

Flowers pale, in axillary tufts, accompanying most of the upper smaller leaves, each tuft of about three or three-fhelf flower-flarks. 

Petals with hairy claws, and five nectariferous glands at their base. 

Cafpule of three ifingle-fedee’d cells. Swartz.
the limits of the empire, and slain at least five thousand of his enemies in battle, without any considerable loss on his own part: to this purpose an express law was established, and he was obliged to make oath before the quafiers, that the account delivered to the senate was true. But this law became obsolete, and intrigues and faction procured a triumph in favour of generals whose merit was not very considerable.

The general who vanquished his enemies in a naval engagement, had also the honour of a naval triumph. These were first granted to C. Duillus, in the year 449, after the defeat of the Carthaginians.

The triumph was of two kinds, the left and the greater. The left triumph was granted upon a victory over some unequal and unworthy enemy, as over pirates, slaves, &c. This they called ovatio, because the only sacrifices offered in it were sheep.

The greater triumph, called also curule, and simply the triumph, was decreed by the senate to a general upon the conquering of a province, or gaining a single battle. The order and economy of the triumph were thus: the general having dispatched couriers with tidings of his success, the senate met in Bellona's temple to read the letters; this done, they fend him the title Imperator, with orders for him to return, and bring his victorious troops along with him.

When he was arrived near the city, the general and principal officers took oath of the truth of the victory; and the day of triumph was appointed.

The day being arrived, the senate went to meet the conqueror without the gate called Capens, or Triumphals, and marched in order before him to the Capitol. He was richly clad in a purple robe, embroidered with figures of gold, setting forth his glorious achievements; his buffins were beft with pearl, and he wore a crown, which at first was only laurel, but afterwards was gold; in one hand he bore a laurel branch, and in the other a truncheon. He was drawn in a car, or chariot, adorned with ivory and plates of gold, drawn usually by two white horses; though sometimes by other animals, as that of Pompey, when he triumphed over Africa, by elephants; that of Mark Antony, by lions; that of Heliogabalus, by tigers; that of Aurelian, by deer; and that of Nero, by hermaphrodite mares, &c.

At his feet were his children, or sometimes on the chariot-horses. It is added, that the public executioner was behind him, to remind him, from time to time, that these honours were transitory, and would not screen him from the severity of the laws, if he should ever be found delinquent.

The cavalcade was led up by the musicians, who had crowned on their heads; after them came several chariots, in which were plans of the cities and countries subdued, done in relief: they were followed by the spoils taken from the enemy, their horses, arms, gold, silver, machines, tents, &c. After these came the kings, princes, or generals subdued, loaded with chains, and followed by mimics and buffoons, who infulted over their misfortunes. Next came the officers of the conquering troops, with crowns on their heads.

After these appeared the triumphal chariot, before which, as it passed, they all along threw flowers, and the music played in praise of the conqueror amidst the loud acclama
tions of the people, crying Io triumpli!

The chariot was followed by the senate, clad in white robes; and the senate by such citizens as had been set at liberty or ransomed.

The procession was closed by the priests, and their officers and utensils, with a white ox led along for the chief victim.

In this order they proceeded through the triumphal gate, along the Via Sacra, to the Capitol, where the victims were slain.

In the mean time all the temples were open, and all the altars loaded with offerings and incense; games and combats were celebrated in the public places, and rejoicings appeared everywhere.

What was horrible amid all this mirth was, that the captives, when arrived at the forum, were led back to prison and strangled; it being a point of religion with them, not to touch the victims till they had taken full revenge of their enemies. The rites and sacrifices being concluded, the triumphant treated the people in the Capitol, under the porticoes, and sometimes in Hercules's temple.

The most considerable triumphs were those of Caesar after the taking of Utica, and of Augustus after the victory of Actium. Caesar had four triumphs, which lasted four days, and were conducted with the most extraordinary splendour and magnificence. The first was the triumph of the Gauls, on which occasion there were presented to the view of the Romans the names of three hundred nations and eight hundred cities subdued by the death of a million of enemies, which Caesar had defeated in several battles. The second triumph was that of Egypt: the third represented the defeat of Pharasin; and the fourth exhibited pictures of Scipio, Petreius, and Cato.

The triumph of Augustus lasted three successive days, and was not less magnificent than the former.

After Augustus, the honour of a triumph became an appendage of sovereignty.

TRIUMPHAL Arch, Car, and Column. See the articles.


This is said to have been taken from Apollo's crowning his head with a laurel, after killing the Delphian serpent.

TRIUMPHAL Gown, toga triumphalis. See Toga.

TRIUMPHANT CHURCH. See Church.

TRIUMPHO de la Cruz, in Geography, a cape on the coast of Honduras. N. lat. 15° 50'. W. long. 88° 25'.

TRIUMVIR, one of three persons who govern absolutely, and with equal authority, in a state.

The word is little used but in the Roman History. Caesar, Caius, and Pompey, were the first triumvirs, i.e. the first who divided the government of the republic among them.

There were also other officers, called triumviri, triumviri; as the triumviri, or tresviri capitales, created in the year of Rome 403, to take care of prisoners, and superintend the execution of criminals.

Triumviri monetales, who were magistrates created at the same time to superintend the coinage of the money: whence that mark till extant on many ancient coins, IIIVIRI. They seem to have been created about the time of the first coinage of silver in Rome, or 266 years B.C. Pomponius ascribes their first creation to the year of Rome 452, or 289 B.C. These officers were very considerable, and were chosen out of the senatorial rank, till Augustus appointed them from the equestrian, and the alteration seems to have continued. However this be, the title triumviri remained still after Caracalla, as appears from inscriptions given us by Gruter, and by Butenroth. But under Aurelian it is probable there was but one master of the Roman mint, called the "Rationalis," which change is supposed to have taken place under Gallienus. The "Rationalis" was succeeded by the "Procurator monetae." The triumviri made a part of the centumviri. The title they bear on medals, which is common on the coins of Augustus and Tiberius, is IIIVIR.

A.A.E.F.F., triumviri aureo, argento, argo, flando, ferrando, R T which
which signifies, that they had the direction of calling and striking of gold, silver, and brass. Julius made quatuor
viri, who continued for 15 years, till the battle of Actium, when Augustus reformed the triumviri.

There were also triumviri aditus reficendi, officers appointed to look at the repairation of temples; triumviri
volui coloni deducendi, for the conducting and setting of colonies; triumviri, for the raising of troops; nautical
triumviri, to prevent or extinguish fires; triumviri, to review the forces, &c.

In the Acilian family we read of one M. Acilius IIII VIR VALETU; that is, triumvir of health, or a
magistrate of health. M. Scaenius takes him to have been a magistrate established to perform sacrifices to the gods of
health, to dedicate their temples, &c.

Onuphius and Vaillant read triumvirus velutinus; Patin,
triumvirus velutoidarius; but M. Scaenius, with much more
reason, reads triumvirus velutudo; in like manner, as on a
medal of the Acilian family, we read IIII VIR VIRTVUS;
signifying that one M. Aciilus had been made triumvir to
repair the temple of Virtue, and Acilius that of Health.

TRIUMVIRA TE, TRIUMVIRATE, an absolute go-

government administered by three persons, with an equal
authority.

There are two famous triumvirates at Rome; Pompey,
Caesar, and Crassus, established the first; and Augustus,
Mark Antony, and Lepidus, the second.

This latter triumvirate gave the last blow to the liberty of
the republic. Augustus having vanquished Lepidus and
Antony, the triumvirate sunk into a monarchy.

TRIUNE, Trei in Uno, three in one; a term sometimes
applied to God, to express the unity of the Godhead, in
a triinity of persons.

TRIXIS, in Botany, from τρίκλα, three-fold, because the
florets of the circumference have three deep dilate petals.
The name is borrowed by Swartz from Browne, who originally
applied it to what is now Pericisium radiale of
Linnaeus and other writers.—Swartz Prodr. 115. Ind.
v. 3. 2337. Mart. Mill. Dict. v. 4. (Baillera; Ablut.
Guian. 804. Juss. 188. Lamarck Illus. t. 712.)—Claf
Compositae opposite-folia, Linn. Cymobifera, Juss.

Gen. Ch. Common Calyx imbricated, ovate, of eight or
ten ovate-oblong, pointed, convex, nearly equal scales; the
outermost slightly keeled, membranous at the tip. Cor.
compound. Perfect florets, in the disk, numerous, funnel-
shaped, with a very short tube, and upright five-cleft limb.
Female ones, in the radius, fewer, shorter, funnel-shaped,
with a compressed tube, and a three-cleft limb, whose hinder
segment is larger than the two in front. Stam. in the florets of
the disk, Filaments five, the length of the tube; anthers
united into a five-toothed cylinder, rising above the limb.
Pil. in the florets of the disk, German linear, downy; fyle
thread-shaped, the length of the filaments, divied at the top;
filigras reflexed; in the female florets, German oblong;
fyle thread-shaped, divided at the top; fligmas reflexed.
Peric. none, except the cloeled unalter ed calyx. Seed of
the florets of the disk, often abortive: of the female ones ovate,
slightly compressed, bordered, convex behind, obtuse, hairy,
and somewhat triangular, at the summit. Down none.
Recept. chaffy, with oblong, acute, concave, membranous
scales.

hairy in their upper part. Florets of the radius three-cleft.
Calyx imbricated.


Willd. n. 2. (T. Canbra; Swartz Ind. Occ. 1378. Baill.
a pera; Aulb. Guian. 804. t. 317.)—Branches silky,
with close-preferred hairs. Leaves ovate, serrated, pointed;
harsh above; rough with defteft hairs beneath.

—Native of Guiana, Cayenne, and the West Indies. As
tall as the fift, but of a more tender habit. Branches
smooth to the touch, being covered with close hairs, point-
ing upwards, not with rigid prominent bristles, as in
the foregoing. Leaves not half so large, rough like a fine file,
on the upper surface, when fully grown; pale beneath,
with flattened, not prominent, brilty hairs. Flowers larger, but
fewer, in looser panicles. We cannot, on an examination
of the stems, doubt this being Aublet's plant, and therefore
we retain the original specific name. His B. syphugis
appears to be, as Willdenow makes it, a mere variety,
though his apera only is used for intoxicating fish.

Ind. Occ. 1375. Willd. n. 3.—Branches brily. Leaves
broadly-ovate, with deep irregular notches and serratures;
roughish on both sides; pale beneath.—Native of various
parts of the West Indies. This is the fize of the first
species, but its leaves are more deltoid, deeply jagged,
and less hairy, though roughish with minute scattered bristles.
Flowers white, much like the first, but fewer and rather
larger, on hairy stalks. The calyx-scales, in every one of
our stems, are much broader and rounder than
Swartz's figure represents. Aublet gives five teeth to all
his florets.

TROADENSE MARMOR, in Natural History, a name
given by the ancients to a species of white marble, dug in
Mount Ida, and greatly used in building.

TROARN, or Trouard, in Geography, a town of
France, in the department of the Calvados, on the Dive;
6 miles E. of Caen.

TROAS, in Ancient Geography, a country of
Asia Minor, commencing at the promontory Leuctum,
and extending as far as the Propontis. It took its name
from the famous city of Troy, its capital. It extended
a little towards the south. If indeed under the appellation
of Troade we comprehend the whole extent of the country
which was subject to the Trojans, that is, almost the whole
kingdom of Priam, we must comprehend almost the whole ex-
tent of the two Myia and Lesser Phrygia. But the Troade,
properly speaking, comprised merely the country which lay
between the Dardanis on the north-east, and the country
of the Leleges, to the south-east, the Hellespont and the
Aegean sea. Tolemy includes the Troade in Lesser Phrygia.
Its principal rivers were the Simois, the Scamander or
Xantippus, and the Andrus. Its principal towns were
Troja or Ilium Sigem, Sminthine, &c.

TROAS-ALEXANDRIA. See Alexandria.
TROAT; among Sportsmen, the cry of a buck in rutting time.

TROCADIE, in Geography, a small island in the gulf of St. Lawrence, near the north coast of St. John's island.

TROCAR, or Trochar, an instrument commonly used in Surgery, for tapping the abdomen, in cervices of uterine and oral dropsy; the tunica vaginalis, in cases of hydrocele; the joints, in bad cases of hydrops articuli, &c. Trocars are also employed for tapping the bladder, when there is no other mode of evacuating the urine, and the symptoms which the patient suffers are so urgent, that no time remains for the trial of milder plans of relief. Abcesses have likewise been opened in some instances with a trocar; though it must be allowed that, in these cases, the lancet is generally a better instrument.

A trocar consists of two pieces, viz. a perforator or fillette, and a silver cannula. The latter is so constructed and adapted to the first part of the instrument, that when the puncture is made, they both enter the wound together with perfect ease; after which, the fillette being withdrawn, the cannula remains in the wound, and affords a convenient channel for the escape of the fluid outward.

Such are the uses of a trocar, and the principles upon which the instrument ought to be made. It has been proposed to make the perforator with a flat lancet-point, in order that it may enter the flesh with greater facility; but time and experience seem still to give the preference to the fillette, which is of a triangular shape. It is true, that it cannot so readily make the necessary puncture; yet if sharp, and in good condition, no great fault can be found with it, in regard to the difficulty of making it enter the flesh; and it is certain, that its cannula is better calculated than the tube of a flat trocar to afford an outlet to fluids, which are at all thick and gelatinous.

The trocar is an instrument which should never be used for the discharge of fluids, except when the practitioner knows with certainty, not only that such fluids are present, but also that their quantity is considerable, so that no injury will be done to the parts beyond them by the sudden introduction of the instrument. In all other cases, cautiously making a small puncture with a lancet, is the most prudent practice. Whenever a trocar is used, surgeons likewise avoid introducing the instrument to a dangerous depth.

The instill the perforator has passed through such parts as intervene between the fluid and the surface of the body, it has performed all that it ought to do: the attentive operator feels a sudden cessation of resistance to the instrument, and he immediately holds back the fillette, whilst he only pushes forward the cannula. See Paracentesis.

TROCHAIC, Trochaic, in the Latin Poetry, a kind of verse consisting of troches, or in which that foot predominates; as the tambus does in the iambic.

The 8th ode of the 2d book of Horace's Odes consists of troches of two verses, the first of which is trochaic dimeter catalectic, i.e. trochaic, composed of three troches, and a syllable at the end, or wanting a syllable in the first foot; which some call the Europidon trochan:

--- Nōn fēlōr | nēgau | au rēum
Lurgia | fluido.

Long verses of fifteen half feet, which are more particularly distinguished by the name of trochee, are nothing more than tetrameter iambics, or of eight feet, the first of which wants a syllable; as there are others where it is wanting at the end. Thus,

--- Pusc | piccia | tō anē | nō sēm | ēm sūp | pul | ērūt | pātri. "Ter.

TROCHANTER, Major and Minor, in Anatomy, two considerable processes of the thigh-bone. See Extremities.

TROCHAR, in Surgery. See Trocar.

TROCHE, Trochicus, in Pharmacy, a form of medicine, made into a cake or tablet, to be held in the mouth to diffuse gradually.

The troche is properly a dry composition; the chief ingredients of which, after having been brought into a very fine powder, and mixed with sugar, are incorporated with some proper liquor, as distilled waters, wine, vinegar, or mucilages, and reduced into a mafs, which is moulded into little cakes, or balls of any form, at pleasure, and dried in the air, far from the fire. As remedies they are of little importance; and the preparation of them properly belongs to the confectioners; and they should be altogether rejected from the Pharmacopoeia, as the London and Dublin colleges have done.

There have been and still are troches of various kinds, and for various intentions; as purgatives, alteratives, aperitives, corrosivatives, &c. troches.

Latin authors call them paffili, rotule, placntule, orbes, and orbiculi; and the English, frequently, lozenges.

The following troches are described in the Edinburgh Pharmacopoeia; viz.

Troches of Carbonate of Lime, prepared by rubbing to powder four ounces of prepared carbonate of lime, an ounce of gum arabic, one drachm of nutmegs, and fix ounces of refined sugar, and forming them by means of water into a mafs fit for making troches. These are intended as antacids; but in the state of the stomach which requires them, the efficacy of the carbonate of lime is counteracted by the sugar.

Troches of Liquorice are formed by dissolving in hot water extract of liquorice and gum arabic, of each one part, and two parts of refined sugar, and then straining; and afterwards evaporating the tolution into a proper state for troches. These troches are demulcent, and serve to allay the tickling irritation which occasions coughing; but the simple extract of liquorice, refined by straining and insufflation, found in the shops under the name of refined liquorice, will answer the same purpose.

Troches of Liquorice with Opium are obtained by well rubbing two drachms of opium, with half an ounce of the tincture of balsam of Tolu; adding gradually eight ounces of simple syrup, and five ounces of extract of liquorice, softened by hot water, and afterwards sprinkling in five ounces of powdered gum arabic; then drying the mafs, and forming it into troches, each weighing ten grains. These troches are rendered more efficacious than the former for the same purpose, by the opium; six troches containing one grain of opium, and from fix to ten may be taken in twenty-four hours.

Trocha, Gum, are prepared by rubbing four parts of gum arabic, one part of flax-hemp, and twelve parts of refined sugar to powder, and forming it into a mafs with rose-water fit for forming troches. These are simple demulcients, and serve to allay a tickling cough.

Troches of Nitrate of Potassium are obtained by beating to powder one part of nitrate of potassa, and three parts of refined sugar, and forming them into a mafs fit for troches, by means of mestilage of gun tragacanth. Thus nitre may be agreeably taken in the dry state, and these troches may serve to cool the mouth in salinations, and to stop the progress of inflammatory fore-throat, when taken at its commencement. They may also be used as a general refrigerant in fevers, diluting largely during the use of them. The
dofe is one or two taken every second or third hour. Thomson's Lond. Dift.

TROCHEE. Trocērus, formed of τριχήν, I run, because it moves quickly, in Greek and Latin Poetry, a kind of foot consisting of two syllables, the first long, the latter short: such as the words νιόεῖ and μουτρία.

The trochee is the reverse of the iambus, and has just a contrary effect; the latter being light and springy, and the former weak and languid, as all those measures are which move from a long to a short syllable.

Some called the trochee, choroet, because it is proper for songs and dances. Thee give the denomination trocheus to the tribachus. Quint. lib. x. cap. 4.

TROCHERA, in Botany. See Ehrharta.

TROCHILUS, in Architecture, a hollow member, more usually called, by modern architects, the female; and, by our English workmen, the bafement.

Trocilus, the Humming-bird, or Honey-sucker, in Ornithology, a genus of birds of the order Picæ; the characters of which are, that the bill is longer than the head, subulate-filiform, or cylindrical, slender, with slightly-thickened tip; the upper mandible sheathing the lower; the tongue filiform, consisting of two conjoined lips forming a tube, and extenfible; the legs slender and rather short, and feet formed for walking; the tail composed of ten feathers.

The humming-birds constitute a lively brilliant race, distinguished by their beautiful colours and diminutive size, peculiar natives of the American continent and adjacent islands, and, with few exceptions, confined to the hotter regions. The genus is extensive, and it has therefore been found convenient to divide them into two sections, viz. the curve-billed and the straight-billed.

* Curve-billed.

PARADISEUS. Red; head crested; blue wings, and two of the tail-feathers very long. This is the Paradise humming-bird of Latham. Native of New Spain.

PELLA. Red (purple-red, Shaw), with brown (black, Shaw) head; golden (topazine, Shaw) throat; green rump, and two very long middle tail-feathers. This is the Cibil topaze of Buffon, the long-tailed red humming-bird of Edwards, and the topaz humming-bird of Latham. It is the most brilliant of this section, and has a decided superiority to all the rest by its magnitude as well as colours. The female is far inferior to the male with respect to brilliancy of colour. This bird is a native of several parts of South America, but is principally found in Surinam and Guiana, frequenting the banks of rivers and brooks. During flight, they skim the surface of the water like swallows.

SUPERCIUS. Gilded or shining brown; elongated middle tail-feathers (white at the tips, Shaw), grey beneath, with long bill and white eye-brows. Shaw. The supercilious humming-bird of Latham, distinguished from all others by the great length of its bill, and its strongly cuneated tail. The female differs by being of a pale rufous-grey beneath, by having a shorter bill, the lower mandible whitish, and the tail lightly cone-shaped and tipped with white. Found in Cayenne.

POLYANTHUS. Glossy-green, with black crown and tail; violet-brown wings, and two very long outer tail-feathers. This is the long-tailed black-cap humming-bird of Edwards, and black-capped humming-bird of Latham. An elegant species, of considerable size. A native of South America, and found also in Jamaica. The female is greenish above and white below; the sides of the neck varied with white and green, and the tail deftuite of the two long plumes so conspicuous in that of the male.

FORICATUS. Gold-green, with blue crown, and gold-blue forked tail, and two outer feathers very long. The long-tailed green humming-bird of Edwards, and fork-tailed humming-bird of Latham. An elegant but rare species; found in Jamaica.

LEUCERUS. Coppery-green, with brown quill-feathers; a reddish crescent in front of the neck, and white even tail. The white-tailed humming-bird of Edwards and Latham. Native of Surinam.

JUGULARIS. Gold-green, with a tinge of dusky-blue; with blood-red throat and breast, blackish abdomen, and even tail. Red-breasted humming-bird of Edwards and Latham. The garnet-throated humming-bird of Latham is of the same species. Found in Surinam.

THAUMANTHIS. Gold-green, with blackish quill-feathers, and tail-feathers edged with white; the exterior one entirely white on the outside. The admirable humming-bird of Latham, first described by Marcgrave. A native of Brazil and several other regions of South America.

DOMINICUS, or PECTORALIS. Gold-green, with velvet-black breast; white belly, and purplish steel-blue tail. The black-breasted and St. Domingo humming-bird of Latham. The female is said to be distinguished from the male by having the green on the fore-part of the neck divided by two white streaks, and the breast of a paler black than that of the male. A native of the West India islands.

MANGO. Copper-green, with black defied throat-fripe and abdomen; violet-brown wings, and ferruginous tail edged with black. The Mango humming-bird of Latham. The female is said to differ in having the two middle tail-feathers gold-green, like the back. A native of South America, particularly of Brazil, but found in St. Domingo, Jamaica, and other West India islands. Dr. Latham mentions a variety of this species, in which the throat, on each side of the black fripe, was white. Gmelin makes the "melivora avis maxima" of Ray and Sloane a variety of this.

HOLOSERICEUS. Gilded-green, with brown wings; black tail and abdomen, and blue pectoral bar. The black-bellied humming-bird of Edwards and Latham. Native of Mexico and Guiana.

GALERUS. Green-gold, with brown quill-feathers, and purple crest. Found in Chili.

EXILIS. Brownish-green, with a gloss of red; glossy-green crest with gilt tip, and black wings and tail. The little humming-bird of Latham, and humming-bird of a black colour of Bancroft. The smallest of the curve-billed section. Native of Guiana.

CYANUS. Velvet-crimson, with blue back, and black wings. The crimson-headed blue humming-bird of Latham. A native of Mexico.

FURCATUS. Glossy violet-blue, with gold-green crown and throat, and black wings, abdomen, and forked tail. The lesser fork-tailed humming-bird of Latham. A native of several parts of South America, and of some of the larger West India islands.

MACROURUS, or FORICIPATUS. Gold-green, with violet head and neck; abdomen marked by a white spot, and forked tail. Cayenne fork-tailed humming-bird of Latham.

PURPUREUS. Green, with crown, wings, and bifurcated tail purple, and wreath blue. The purple-crowned humming-bird of Latham.

AURATUS. See JUGULARIS. Of this Gmelin gives a variety, viz. with cheeks, nape and throat golden-red; head and body black, with shining-green.

GRAMINEUS. See DOMINICUS or PECTORALIS.
TROCHILUS.

VIOLEACEUS. Dark purple-violet, glisting on the fore- parts, with green and gold wings and tail, the latter tinged with black. The violet humming-bird of Latham. Native of Cayenne.

MACULATUS. See Gutturalis.

PUNCTATUS. Gold-green, with blackish wings; shoulders and back spotted with white, and brown tail with white tip. The spotted humming-bird of Latham. Native of Mexico, where it is called "Haitizitil." See Gutturalis, of which it is a variety.

AURANTICUS. Brown, with orange head; yellow throat and breast, purple wings, and ferruginous tail. The orange-headed humming-bird of Latham. Native of South Africa.

FLAVIFRONS. Green, with yellow front, and black wings and tail. The yellow-fronted humming-bird of Latham, and yellow-fronted honey-fucker of Pennant.

VENUSTISSIMUS. See Cyaneus.

MARGARITACEUS. Bright-green, pearl-grey beneath, with the tail fleck-blue at the base, purple-brown in the middle, and white at the tip. The grey-necked humming-bird of Latham. Conjectured by Dr. Shaw to be female?

HIRSUTUS. See Brasiliensis.

MULTICOLOR. See Histrio.

ICERUS. Green, with blackish wings, and rounded fleck-blue tail with white tips. The ash-bellied humming-bird of Latham.

GULARIS. Gold-green; white beneath, with blackish wings and tail, and deep-blue throat and vent. Probably a native of South America.

FULVUS. Yellow, with the tail-feathers and covers thick; underneath brownish. A native of South America.

VARUS. Green; beneath whitish-brown, with a double pectoral band green-blue and blood-red. Found in South America.

CYANUS. Green; cinereous beneath, with the throat, breast, and two very long middle tail-feathers blue. The blue-tailed humming-bird of Latham. Native of New Spain.

FURCIFER. Green, with brown wings; white throat, and glossy blue-green breast and forked tail. Native of Paraguay.

MAXIMUS. Green, with white throat, ferruginous vent, and blue crown, quill and tail-feathers. Eekelberg's humming-bird of Latham.

CAPENSIS. Green, with long middle tail-feathers, and blue wing-coverts. Eekelberg's humming-bird of Latham.

CHRYSOBROCHOS. Gold-green, with very bright throat and breast; subferruginous wings, and white-edged tail. Native of Guiana.

SPARANUS. Gold-green, with emerald throat, and black forked tail, with a gold-crimson bar across the feathers. The barred-tailed humming-bird. A very beautiful species, said to be a native of Peru.

PORPHYRUS. Brown, with velvety-black throat, and purple neck-stripes and tail. A variety of the mango, according to Latham. Native of South America and the West India islands.

GUTTURALIS. Green, with emerald throat; whitish- rufous on each side; black breast, and black abdominal stripe. The T. gularis of Latham; and maculatus of Gmelin. The green-throated humming-bird of Latham.

NITIDUS. Violet-tailed humming-bird of Latham, and T. albus of Gmelin's Linnaeus. Supposed by Shaw to be a variety of the preceding.

BRASILIENSIS. Gold-green; rufescent beneath, with violet-brown wings and tail; the latter tipped with white, and white-feathered legs. The rufous-bellied humming-bird of Latham. The T. hirifutus of Gmelin's Linnaeus. An elegant species. Native of Brazil.

FASCICATUS. Green-gold, with rufous undulations; blackish-rufous head; and a black band edged with white along each side of the body. Banded humming-bird. Native of Paraguay.

PUNCTATUS. Gold-green; beneath brownish undulated with white; with subvilaceous wings, and tail white at the base and tip. Scallop-humming-bird, strongly allied to the Mango, and it is not impossible, says Dr. Shaw, that it may be the young, in its first year's plumage.

AUREO-VIRIDIS. Gold-green, with blackish wings; and fleck-blue tail with white tip. Native of the West India islands.

AUREOLUS. Dark gold-green, with brighter throat and shoulders; black breast, brown abdomen, and subvilaceous tail. A native of the island of Porto-Rico.

TRIMACULATUS. Gold-green; black beneath, with three white spots on each side; brown quill-feathers, and fleck-blue tail. Native of South America. Dr. Shaw conjectures that this may be only a variety of T. mango, holosericeus, or pectoralis.

ELEGANS. Gold-green, with black breast; violet-black wings; and greenish-black forked tail. Native of St. Domingo.

HISTRIO. Brown, with gold-green crown, throat, breast, and shoulders; red belly, and blue cheeks. The harlequin humming-bird of Latham and Shaw, and the multicolor of Latham and others. A highly elegant species, and remarkable for its variety of colours. Native country uncertain.

CHRISTELLUS. Green, with shining gold-green crest; and black wings and tail. Gilt-crested humming-bird of Latham. A small and elegant species, much allied to the T. exilis.

* * * With straight Bill.

PLATIRUS. Gold-green, with brown belly, quill-feathers, and tail; the middle tail-feathers naked with webbed tips. The racket-tailed humming-bird of Latham. This is a rare species, and a native of South America.

LATIPENNIS, OF CAMPOLOCTERUS OF LINN. LINN. Gold-green; grey beneath, with brown wings and tail; and the edges of the greater quill-feathers dilated and incurved. The broad-tailed humming-bird of Latham. One of the larger humming-birds, a native of Cayenne, and a very rare species.

AURITUS. Gold-green; white beneath, with slightly elongated violaceous ear-feathers, black wings, and lateral tail-feathers. The violet-crested humming-bird of Latham; an elegant species. Native of Cayenne. Gmelin mentions a variety with a purple band below the eyes, a large area near the ears, below which is a green-blue spot.

MELLIVORUS. Gold-green, with blue head, neck, and breast, and white mouchal bar, abdomen and tail. White-bellied humming-bird of Edwards and Latham. Native of South America, and not uncommon in Cayenne. The T. simbriscus, or spotted-necked humming-bird of Latham and Gmelin. Linnaeus is supposed to be a species. There are also other varieties mentioned by Vieillot.

OURSIA. Gold-green, with blue back, breast, and belly; brown quill-feathers, and golden-brown tail. The green and blue humming-bird of Edwards and Latham. Native of Surinam. N.B. The American word "Oursia," signifying a fun-beam, is applied by some of the earlier writers to certain species of humming-birds, on account of the
the splendour of their colours. Gmelin mentions a variety, viz. T. green; beneath blue, with orange spot on the chin; quill-feathers and tail obscure.

SUPERBUS. Gold-green, with blue crown; double black-and-white cheek-stripe, and crimson throat and breast. Stripe-checked humming-bird of Shaw. This superb humming-bird is a most beautiful species, and one of the finest of this brilliant race. Native, probably, of South America.

SAPPHRINUS. Bright fapphire-coloured, with slightly-gilded back; brown wings; black abdomen, and blue-blue tail. The fapphire humming-bird of Latham. Native of South America. Gmelin mentions a variety, viz. T. with fapphire breast, white belly, and tail blue-black.

SMARAGDO-SAPPHRINUS. With bright fapphire-blue head and throat; gold-green body; brown wings, and reed-blue tail. The fapphire and emerald humming-bird of Latham. Native of South America and the West Indies. Shaw suggests that the two last mentioned humming-birds really constitute one species. He mentions a variety of the last from Viellot, viz. the blue-gorge humming-bird.

LUCIDUS. Bright gold-green, with deep-blue throat, black belly, and tail; and a white spot behind each eye: supponed by Azara and Sonnini to be the same with the fapphire and emerald humming-bird. Native of Paraguay.

AMETHYSTINUS. Gold-green, varied beneath with grey and brown, with amethystine throat, and forked tail. The amethystine humming-bird of Latham. Native of Cayenne.

MOSCHITUS. Purple-brown; blackish beneath, with ruby-gold crown, topazine throat, and black-tipped tail. The ruby-necked humming-bird of Latham. To this species Dr. Shaw refers the T. elatus of Gmelin's Linneas, or ruby-crested humming-bird of Edwards and Latham. This is one of the most beautiful of the straight-billed humming-birds. Native of South America, and particularly of Brasil, Guiana, and Surinam. The ruby-crested humming-bird is a variety.

PEGASUS. Gold-green; grey beneath, with brown wings, and blackish-purple tail with greenish hue. Grey-bellied humming-bird and gold-throated humming-bird of Latham. Dr. Shaw suggests that this may be a young female of T. moschitus.

HIPPOPHUS. Gilded-brown; whitish beneath, with brown crown, and gold-green stripe down the middle of the throat. The brown-crowned humming-bird of Latham, conjectured by M. Viellot to be no other than an advancing young of T. moschitus.

CARBUNCULUS. Glossy-black, with dark-red crown and nape, fiery-red throat and breast, and gilded-rufous tail. The carbuncle humming-bird of Latham is fuguected to be a variety of T. moschitus; rare in Cayenne.

CHRYSEUS. Gold-green, with cinnamon throat, brown quill-feathers, and topazine tail. Native of Paraguay.

COLORUS. Gold-green; about three inches in length; beneath white, with gold-red throat, and purple-brown wings and tail. The red-throated humming-bird of Edwards and Latham, red-throated honey-flicker of Pennant, guianumbi of Maregrave. A beautiful species. A native of America, breeding in Carolina, Florida, and, as some say, in Canada; and also a native of Jamaica and some other West India islands. The female differs in having the whole under side white, without any redness on the throat, and all the tail-feathers, exclusive of the two middle ones, tipped with white. The general history of this beautiful bird is detailed by Mr. Pennant in his Arctic Zoology. Its flight is rapid, so that it is transient as lightning, and resembling this meteor in the glare of its colours: it feeds only upon the wing, suspended over the flower from which it extracts nourishment. The most violent passions sometimes agitate the little bodies of these birds. Their contests in disputing possession of the same flower are very violent; tilting against one another with such fury, as if they intended to transfuse their antagonists with their long bills. They are fearful of mankind, coming into apartments of houses, the windows of which are left open, but when approached, darting away with admirable velocity. Their nests, made in branches of trees amidst the thick foliage, are found with difficulty: they are of elegant structure, formed on the outside with moss, and within lined with down or goat's hair collected from the great mullein, but sometimes constructed of flax, hemp, hair, and other soft materials. The female is said to be the builder, and the male supplies her with materials: both are in the labour of incubation, which lasts twelve days: they lay only two eggs, which are white, and as small as peas. It is fuguected that the patch-necked humming-bird of Latham's first supplement is no other than a young male of this species. The tominuo of Gmelin is a variety.

RUBINEUS. Green-gold, with gold-red throat, purplish-brown wings, and rufous tail. The ruby-throated humming-bird of Latham. Native of South America, and particularly of Brasil, and is considered as one of the rarer kinds of humming-birds.

MELEAGRUS. Gold-green, with gloriously blue-green throat, violet-black wings, and feathered legs. The emerald-throated humming-bird of Shaw, the all-green humming-bird of Edwards, and the Cayenne humming-bird of Latham. This is one of Maregrave's guianumbis.

COLLARIS. Rufous, paler beneath, with gold-green crown, and gold-red throat, with the feathers elongated on each side. The rufus-necked humming-bird of Latham. This species is numerous in Nootta Sound.


ALBROSTRIS. Blackish, with gold-green throat; each feather edged with grey, and white bill, thighs, and vent. The white-billed humming-bird of Shaw. Native of Cayenne.

VIELLOTI. Blackish-olive, with golden gloss; beneath whitish, with violet-brown quill-feathers. Viellot's humming-bird, and black humming-bird of Latham. This small species is common in the island of St. Domingo, supponed by Viellot to be the T. niger of Linneas.

LEUCOCRATOPHUS. Gold-green; beneath grey, with white belly; a whitish stripe behind the eyes, and blue-black quill and tail-feathers. The most common species in Paraguay.

MAUGEAHUS. Gold-green; beneath glossed with violet-blue, with violaceous-black wings and tail, the latter slightly forked. Maugean humming-bird, or Tabago humming-bird of Latham. Native of the island of Porto-Rico, whence it was brought by M. Mauge.

RUBER. Sub-ferruginous; slightly spotted with brown, with the side-feathers of the tail violet-brown. The little brown humming-bird of Latham. Brought from Surinam.

CRISTATUS. Gold-green, cinereous beneath; with golden-blue pointed crest, and violet quill-feathers and tail. The crested green humming-bird of Edwards and Latham. The female differs in wanting the crest, and in being ash-coloured beneath. Native of South America, and some of the West India islands.

PILEATUS. Brown, with gloriously blue pointed crest. The T. puni-
TROCHITAE, or TROCHITES, in Natural History, a kind of figured fossil flakes, resembling parts of plants; vulgarly called St. Cathbert's beads.

They are usually of an opaque, brownish colour: they break like spar, glossy and shining, and are easily dissolved in vinegar. Their figure is generally cylindrical, sometimes a little tapering, the circumference smooth, and both the lat fides covered with fine radii drawn from a certain hole in the middle to the circumference.

Two or three, or more, of the simple trochites, joined together, constitute what the naturalists call an entrochus.

In thefe the trochite, or single joints, are so set together, that the rays of the one enter into furrows in the other, as in the futures of the flull. They are found in great plenty in the bodies of the rocks at Braughton and Stock, two villages in Craven, at all depths under ground; also in Mendip-hills, &c. sometimes only sprinkled here and there, and sometimes in large strata, or beds, of all magnitudes, from the size of the smallest pin, to two inches about.

They are often found ramosus or branchy, several rudiments of large branches arising from the fl emblem, or cylinder, and sometimes flill smaller from thefe. The branches being deeply incerfed into the flem, the tearing them off leaves great holes in them. See Entrochus Rumpfus.

Dr. Lister has discovered a f ort of little fragment among them, which he takes to have been the apices of them; and another fort, which he imagines to have been the roots: for he supposes them to be a fort of rock-plants.

M. Beaumont, in the Philosophical Transafsions, affures us that he has found, that all the cliffs in fome mines are made up of fome entrochi, fome of which have been converted into a reddish matter: while others, becoming white fpar, compofe bodies of that fubfance: and confidering that all the cliffs, for a very large circumference in fome places, confift almost wholly of thofe ftones, it has been thought by fome, who suppofe them plants, that there have been, and ftil are, whole fields or forefts of thefe under ground, as there are of coral in the Red fea. In the courses between the cliffs are found of thofe foffils, at all fages and degrees of maturity, growing up in the gritty clay, and rooted in the rake-mold ftones, many of them of the form and dimensions of a tobacco-pipe, with the evident beginnings of circles and futures; and others full-grown, formed of perfect fpar, and at their point of maturity.

The central matter, in many, continues fill white and folt, as the whole fubfance is, by fome, thought to have been at firft; and is continually refhened by the mineral freams and moifure, which have free access to it through the mafs of clay usually lying under the plain roots.

From the curiosity of their make, and from this accidental refemblance of plants, many have thought them to be fuch; and affirm, that they may vie with most of the vegetable kingdom, and are shaped and formed like them; having flem, branches, roots, an inward pith, as likewise joints and runnings in their grit, and fometimes cells to fupply the place of veins and fibres.

Others have thought it highly probable, thefe rock-plants are lapides fui generis, and not parts of animals or plants petrifed, as many authors have imagined. If the figured roots, on which they fometimes grow, give any fufpicion they might have belonged to an animal, particularly a fpecies of the illa arborefens, the trunks feem to them to excite the contrary: nor are they reducible to any known fpecies of vegetables. M. Beaumont tells us, that he had by him above twenty diferent fpecies of trochiotes, all of them wonderfulliy regular, and not to be paralleled by any vegetable he knows of in nature; and it is inconcievable how fo many fpecies, diffused through many parts of the earth, should come to be loft. They are certainly, indeed, not vegetable remains, but are truly parts of the illa arborefens petrifed. See farther, Keppells Effai de Entroche, and the articles Entrochus, Star-flills, and Star-flone.

TROCHITIFER GLANS. See GLANS Trochitifa.
TROCHLEA, \( \tau \rho \rho \chi \lambda \varepsilon \), one of the mechanical powers, usually called a pulley; which see.

TROCHELA, in *Anatomy*, a name given to some articular emanations of bones, which resemble in form the grooves of a pulley: viz. that of the humerus, adapted to the ulna.

TROCHELEARIS, a muscle of the eye. See EYE.

TROCHMI, in *Ancient Geography*, the name of one of the three Gaulish nations, which, according to Strabo, established themselves in that part of Galatia which respects the Enxine sea, and that which touches on Cappadocia.

TROCHOCARPA, in *Botany*, from \( \tau \rho \chi \omega \sigma \), a wheel, and \( \kappa \alpha \tau \rho \omega \tau \), fruit, serving to express the orbicular depresed form of the nut, like a little toothed wheel.—Brook Prodr. Nov. Holl. v. 1. t. 54.—Cliffs and order, Pendantria Memegynia. Nat. Ord. Epipisperidae, Brown. Gen. Ch. Cal. Persiant inferior, of five equal, ereth, oval leaves, with two smaller ones, of the same shape, at the base, permanent. Cor. of one petal, funnel-shaped; tube cylindrical, pervious, longer than the calyx; limb in five deep, oval, spreading segments, bearded on the upper side. Nectary cup-shaped, five-lobed, surrounding the base of the germen. Stam. Filaments five, thread-shaped, the length of the tube, inserted into its lower part; anthers oblong, incumbent, included within the tube. P. Figs. Germen superior, ovate; style very short; stigma filiform. Peric. Drupa globoso, depressed, juicy. Seed. Nut orbicular, with ten lobes, finally separating into as many distinct cells, with a kernel in each.


1. *T. laurina*. Laurel-leaved Trochocarpa. Br. n. 1. (Cyathodes laurina; Ridge Tr. of Linn. Soc. v. 8. 293. t. 9.)—Found near Port Jackson, New South Wales. A small tree, smooth in every part, with very hard wood. Leaves feathery, on short falks, elliptico-lanceolate, acute, entire, many-ribbed, with somewhat of the aspect of a *Rafan*, each near two inches long. Spikes rather lax, terminal and axillary, shorter than the leaves. Flowers white, small. Fruit less than a pea.

TROCHOID, Trochoi, or Trochoidea, formed from \( \tau \rho \chi \omega \sigma \), wheel, and \( \omega \), form, in *Geometry*, a curve, whose genesis may be thus conceived: if a wheel or circle be moved with a two-fold motion at the same time, the one in the right line, and the other circularly about its centre, and these two motions be equal, i.e. describe two equal lines in the same time: and if in the radius, which at the beginning of the motion reaches from the centre of the wheel, or the first point of the line which describes the circumference: if I say, in this radius, a point be taken any where, except in the centre, this point will describe a curve, one part of which will be below the line described by the centre, and the other above it. This line, thus described by the point taken in the radius, is called the trochoid.

The right line which joins the two extremities of the trochoid, and which is either the path the wheel makes, or a line parallel to that path, is called the base of the trochoid.

The axis of the trochoid is the diameter of the wheel, perpendicular to the base in the middle of the motion; or that part of the radius between the trochoid and its base. The point, in which the axis is cut into two parts by the line described by the centre of the wheel, is called the centre of the trochoid; the uppermost point of the axis the vertex of the trochoid; and the plane comprehended between the trochoid and its base, the trochoidal space.

The trochoid is the name with which we otherwise call the cycloid; for the properties, &c. of which, see CYCLOID.

TROCHOIDES LACUS, or Trochoide Lake, in *Ancient Geography*, a lake in the isle of Delos. It was on the borders of this lake, that, according to the mythologists, Latona was brought to bed of Apollo and Diana; and here the first of these deities had a temple.

TROCHTELINGEN, in *Geography*, a town of Wurttemberg, lately imperial; 16 miles N.W. of Buchau. N. lat. 48° 16'. E. long. 9° 18'.—All, a town of Germany, in the county of Osteningen, on the Eger; 4 miles S.W. of Nordlingen.

TROCHUS, in *Antiquity*, denotes the exercise or game of the hoop. The hoop was of iron, five or six feet in diameter, set on the infield with a number of iron rings. The boys and young men used to whirl this along, as our children do their hoops, directing it with a rod of iron, having a wooden handle: which rod the Grecians called *oikop*, and the Romans *radius*. The clattering of the ring served partly to the diversion, and partly as a notice for persons to keep out of the way. Horace de Art. Poet. ranks this exercise among other manly sports:

“Ludere qui nefcit, campelfribus ablinet armis, Indoculis, pilae, dierce, trochive quiet.”

TROCHUS, in *Natural History*, the name given by authors to a genus of shells; some of the species of which resemble the figure of the trochus, or top, which boys play with. As there are many species of this shell, however, which are flattened and have nothing of this form, the whole series of them are much better named, by a denomination taken from the shape of the mouth, which is of an oval figure, and is alike in all these species, and different from all other shells. They are therefore aptly characterized by a late French writer under the name of cochlea ore deprego.

The trochi, or tops, form the fifteenth family of shells in Da Costa's arrangement; and he designates them to be shells of a conic or pyramidal shape, the top being broad and flat, and gradually tapering thence to a very sharp point; the aperture or mouth is most generally angular, low, and narrow. This is a numerous family, and abounds with curious and fine shells, See Trochus, under COXCHOLY.

There is a fossile species of trochus, not yet discovered recent. It is a large kind, flat, and like a coelacha helix, generally about two inches in diameter, much wrinkled, with sharp prominent edges like plates, which are spiked at regular distances, running across the sires; and the whole shell is likewise fricated. This trochus is found in the limestone of Coalbrook-dale in Shropshire, and Dudley in Staffordshire.

TROCKENBERG, in *Geography*, a town of the duchy of Storia; 4 miles N.W. of Rein.

TROCTOU, a small island in the East Indian sea, near the coast of Qu بدا. N. lat. 6° 30'. E. long. 99° 33'.

TROCTUS, in *Ichthyology*, a name given by Aristotle, *Athens*, and others of the Greek writers, to the fish called *ama* by Pliny, and most other of the later, as well as ancient Latin writers; but by some, *lechia* and *glauce*. It is properly a species of the *scambar*; which see.

TROČZENIECZ, in *Geography*, a town of Poland, in the patalinate of Bracław; 20 miles S. of Bracław.

TRODEN, a town of Germany, in the principality of Querfurt; 8 miles S.E. of Juterbock.

TRODENA,
TROGEN, a town of the county of Tyrol; 16 miles S.S.E. of Bolzano.

TROGEN, or TROZEN, Damali, in Ancient Geography, a town situated towards the S.S.E. extremity of the peninsula of the Argolid, at a small distance from the sea, and at the junction of the two rivers, the Chryforrhoeus and the Hylycus. This town took its name from a hero, the son of Pelops, and the brother of Pitheus. The last reigned there, and was admired for his virtues and the mildness of his government. The veneration which his conduct had excited, remained to the time of Pananias.

Trozen abounded with a variety of monuments; among which we may reckon the tomb of Pitheus, a temple dedicated in honour of Diana Convenatrix by Theseus, after his return from Crete, as an acknowledgment of his having escaped the fury of the Minotaur; a portico ornamented with the statues of women and children; a chapel consecrated to the Muses, and a great number of temples. The inhabitants of Halicarnassus, in Caria, regarded Trozen as their capital. A great part of the territory of Trozen was an ilithmus extending into the sea, and as far as Hermione to the W. The port lay N. of the town, and was called "Pogonis portus."

TROZEN, a town of the Peloponnesus, in the interior of Messenia. Ptol. tomenty.

TREZENE, a town of Asia Minor, in Caria. Strabo.

TROGILUS, a country of Macedonia. Steph. Byz.

TROGLODYTE, TROGLODYTE, formed of τρυγλυτς, caverna, and ους, I enter, a people of Ethiopia, said to have lived in caves under ground.

Pomp. Mela gives a strange account of the Trogloidytes.
—He says, they did not so properly speak as Hriek; and that they lived on serpents, &c. Tzetzes calls them Ἰθήβιοσια. Montanus takes them to be the same with those called in Scripture Ghananim. Pintianus in Strabo will have the name written without the I, Trogolitis.

These Trogloidytes, so called by the Greeks from their principal habitations in natural caverns, or in mountains excavated by their own labour, were probably, as Sir William Jones conjectures (Works, vol. iii. p. 166, 8vo.) the first inhabitants of Africa, where they became in time the builders of magnificent cities, the founders of seminaries for the advancement of science and philosophy, and the inventors (if they were not rather the importers) of symbolical characters. Upon the whole he concludes, that the Ethiopians and Meroë were the same people with the Phrygian Egyptians, and hence likewise, as might be easily shewn, with the original Hindos. We have already, aided by the conjectures and historical details of the learned Bryant, and of the indefatigable traveller Bruce, traced the probable origin of these people under the article Cushi. Having accompanied the Cushiotes or Cushites in their migrations to Abyssinia, and conjectured the reason of their forming excavations in the mountains and rocks for their habitations, we shall now attend them in their peregrinations towards the south. Besides other arts, with which they seem to have been acquainted, they employed themselves in astronomical observations; and accordingly wished to defend themselves from the tropical rains and cloudy skies, that hindered their correspondent observations with their countrymen, defended from the fame ancestors, who had established themselves at Meroë and Thebes. But upon advancing within the southern tropic, they still found rains; and, therefore, constructed hovels, such as the fear of a deluge had induced them to prepare. They found solid and high mountains in a fine climate; but, more fortunate than their countrymen to the northward, they found gold and silver in large quantities, which determined their occupation, and constituted the riches and confecution of their country. In these mountains, called the "mountains of Sofala," large quantities of both metals were discovered in their pure and unmixed state, lying in globules without alloy, or any necessity of preparation or preparation. The balance of trade, to long against the Arabian and African continents, turned now in their favour, from the immense influx of these precious metals, found in the mountains of Sofala, just on the verge of the southern tropical rains. The northern colonies advanced gradually from Meroë to Thebes, intent upon the improvement of architecture and building of towns, which they began to substitute for the caves which they and their ancestors, the Cushiotes, originally occupied; and they thus became traders, farmers, artificers in various branches, and even practical astronomers, from having a meridian night and day free from clouds, for such was that of the Thebaid. As their brethren, who still inhabited the mountains, did not enjoy similar advantages, being confined by fixed months' continued rain to their caves, we naturally imagine that their foedantic life would render them useful in reducing to practical purposes the observations daily made by those of their countrymen who lived under a purer sky. Letters too, or at least one fort of them, and arithmetical characters, as we are informed, were invented by this middle portion of the Cushites; while trade and astronomy, the natural history of the skies and feaons, were employing that part of the colony which was established at Sofala, more to the southward. The very nature of the commerce of the Cushites, the collecting of gold, the gathering and preparing of ipices, necessarily fixed them perpetually at home; but his profit depended on the diffipation of these ipices through the continent, otherwise his mines, and the trade produced by the possession of them, would be of little avail. A carrier was necessary for the diffipation of their disposable commodities; and such they found in their own vicinity. These carriers were denounced Berers or Shepherds, as well as distinguished by other appellations of similar import. These shepherds of the Thebaid and Ethiopia were wholly employed in the dispersion of the Arabian and African goods all over the continent; and they rove to be a great people. As that trade increased, their cattle multiplied, and consequently they increased in number, and the extent of their territory was enlarged. Nothing was more opposite than the manners and life of the Cushites, and his carrier the shepherd. The first, although he had forsaken his caves, and now lived in cities which he had built, was neccesarily confined at home by his commerce, amassing gold, arranging the invoices of his ipices, hunting in the feaon to provide himself with ivory and with food through the winter. The mountains, and the cities he afterwards built, were situated upon a lowly, black earth, so that as soon as the tropical rains began to fall, he was deprived of his cattle, by fraughts of flies (see Zins) which appeared wherever that loamy earth was; which made him
absolutely dependent upon the shepherd, who was himself also affected by this circumstance. The shepherd, as a carrier, was enabled to perform his long and toilsome journeys across Africa by means of the camel, emphatically called by the Arabs "the ship of the desert." When Carthage was built, the caravans of this commerce fell into the hands of the Libyans, and became a great accession to the trade, power, and number of the shepherds. For a further account of these shepherds, see Shepherds of Egypt.

As the Abyfthinians of the Arabian flock had no symbols of their own to represent articulate sounds, they borrowed those of the Troglydotes above mentioned; and to them we may with probability trace the origin of the Abyfthinian written language, or the Ethiopic, which is a dialect of old Chaldean, and a filter of Arabic and Hebrew; and many improvements in science and the arts, as well as in commerce, at an early period, were introduced into Africa, and through Abyssinia and Ethiopia into Egypt, by these people. It has indeed been suggested that the Gypsies (see the article) were Troglydotes from the rocks near Thébes, where a race of banditti still resemble them in their habits and features; but it seems more probable that the Gypsies, whom the Italians call Zingaros and Zinganos, were not other than Zinganians, who might, in some piratical expedition, have landed on the coast of Arabia or Africa, where they might have rambled to Egypt, and at length have migrated, or been driven into Europe.

TROGLODYTES is also an appellation given to a sect of Jewish idolaters.

The prophet Ezekiel relates, chap. viii. ver. 8, 9, 10, &c. that God, among other abominations of the Israelites, which he set before him, shewed him twenty old men, who, with their censers in their hands, adored secretly all kinds of animals and reptiles painted on the wall.

Philaffrion, on this vifion of the prophet, erects these idolaters into a sect of Israelites, who, hiding themselves under ground, and in caves, adored all kinds of idols.

And yet the prophet plainly shews, that it was in secret parts of their houles, and not in subterraneous caverns, that these seventy Israelites idolatrized. The name Troglydotes, then, is feigned; and so, probably, is the sect.

TROGLODYES, in Ornithology. See Wren.

TROGODOS, TROGODUS, or TROBUS, in Geography, a name given by the Greeks of the present day to mount Olympus, which divides the island of Cyprus longitudinally. In order to distinguish it from another mountain of the same name in Natalia, and from another more famous in Macedonia, the ancients gave this the name of "Little Olympus." On its summit they had built a temple dedicated to Venus, the entrance of which, by a regulation very strange for a spot consecrated to the goddess of Love, was prohibited to women: they were even forbidden to look at it. To this temple, an elegant and sacred recess, where were celebrated the enjoyments of nature, had succeeded treaties erected for privations. Numbers of convents were built on the same ground. There, laborious Canebites embellished the slope of the mountain with gardens, and plantations of all sorts, laid out with taste. This was the most charming abode in the island; and the rich Cypriots went thither, during the summer, to enjoy the coolness of agreeable groves, watered by limpid streams, directed with considerate art. Insensible to a happy harmony of nature and industry, the Turk has carried his ferocity and ravages into this beautiful district: the monasteries have been demolished, and cool and cheerful spots have been clothed with the rugged garb of sterility. Sonnini.

TROGON, CURUCU, in Ornithology, a genus of the Picæ; the characters of which are, that the bill is shorter than the head, cultivated, hooked, and ferrated at the margin of the mandibles; the nostrils are covered with bristles; and the feet, short, simple, covered with down, are formed for climbing, having two toes forward, and two backward.

The birds of this genus are mostly inhabitants of South America; they feed on fruits, and all agree in their general habits of life. In Guiana they are denominated Curucous or Curucu, from their notes being very much like that word.

Species.

STRIGLIATUS. Cinereous, with a fulvous abdomen; wings frigiate with white; tail-feathers black, the three lateral ones outwardly banded and tipped with white. The cinereous curucu of Latham. Inhabits Cayenne and Guiana.

CURUCU. Golden-green; of a fulvous red beneath; throat black; wing-coverts and the three exterior tail-feathers white, tipped with black. Red-bellied curucu of Latham. Of this species there are several varieties, viz. one mentioned by Maregrave, which had the wing-coverts plain brown, the bill aht-coloured, irides fafnron-coloured, and without the bare spot under the eye mentioned by Brifon in his description,—another, with a yellow abdomen; the green yellow-bellied cuckow of Edwards,—another, described and figured by Buffon, of a cinerous grey, with very light traces of green-gold, especially on the back and middle tail-feathers; the lower part of the belly and the vent only being red; the tail very long, having the outer webs of the three lateral feathers and the tips white; the three outer quills are also marked with black and white on the exterior webs. This species is a very solitary bird, being found only in the thickest forests; and in pairing time never more than two are found together, when the male has a very melancholy note, never uttered except whilst the female is fitting. They pair in April, and lay three or four white eggs. The male, during the incubation of the female, supplies her with food, and by his fong helps to pass away the time. The young, when first hatched, are altogether without feathers, and are fed by the old birds with small worms, caterpillars, and insects; but are deserted by them, when they are able to fift for themselves; and the parent-birds return to their solitary haunts, till August or September, when they are prompted to produce another brood. At St. Domingo and in other islands these birds are called "Dame Angiloe," where attempts have been made to tame them, but ineffectually, as they refuse to eat, and consequently die. They are also found in Cayenne, Peru, Brasil, and Mexico.

VIRIDES. Golden-green; beneath yellow; throat black; with the three lateral feathers on both sides obliquely denated with white. The yellow-bellied curucu of Latham. Of this species there is a variety, viz. the left, with white abdomen: the white-bellied curucu of Latham. This species inhabits Cayenne.

RUFUS. Rufous, with the body beneath yellow; wings frigiate with black and grey; the three lateral tail-feathers frigiate with black and white, with white tips. The rufous curucu of Latham. Found in Cayenne.

VIOLEACEUS. Violet-coloured, with a green back; wing-coverts and secondary quills spotted with white; the three lateral tail-feathers barred with black and white, with white tips.
tips. The violet-headed curucui of Latham. Found in Cayenne.

MACULATUS. Striped with dusky and brown; crown green; wing-coverts and secondary quill-feathers green, white at the tips; tail dusky, with white bars. Spotted curucui of Latham; inhabiting Ceylon.

FASCINATUS. With a ferruginous back; body beneath fulvous red; head and neck dusky, with a white fascia on the breast; wings falcated with black and white; apex of the tail black. Faeicated curucui of Latham; inhabiting Ceylon, but rare, and called by the inhabitants "Rautvak-kondea."

ASIATICUS. Green, with the forehead, crown, and hind part of the neck red; throat blue, with a red spot; quills and tail-feathers black. Blue-cheeked curucui of Latham; inhabiting India.

YSIDICUS. Dusky, with ferruginous spots above; beneath yellowish, striped with dusky; head black, with white stripes; tail very long, and barred. Indian curucui of Latham; called in India by the natives "Bungummi."

NARINA. Above green, with a red belly. Male, with the head, neck, back, throat, jugulum, breast, and wing-coverts green, which last are greyish behind; quills black, bordered externally with white. Female, with the throat, jugulum, and wing-coverts brown; abdomen in front cinereant. Le Vaillant says, that this bird is an inhabitant of Caffaria, and the country of Autenicua to the river Gantoo, and that the name Narina, in the Hottentot language, signifies a flower. The female lays four nearly round eggs, and during her incubation the male has a melancholy note, but at all other times he is silent.

TROGUS POMPEIUS, in Biography, a Latin historian, flourished in the time of Augustus, and wrote 44 books, under the title of "Philippies," so called from their subjeft, which was the Macedonian empire, originating with Philip, the father of Alexander. An epitome of this work by Justin is extant. Justin denominates Trogus a man of ancient eloquence, and Pliny, who often refers to him in his Natural History, distinguishes him by the appellation of "severissimus auctor," as a most exact author.

TROJA, or TROJAN Games, Ludi Troiani, were games instituted by Aescanius, son of Æneas; and which afterwards passed to the Romans, and were celebrated in the Circus by the youth of Rome.

One of the number, who preceeded over the folemnity, was called princeps juvenitis; and was always of one of the first families in Rome. At first, it was fuppofed, they only engaged on foot, and on horfebæck; because Virgil, who describes these games in the Æneid, lib. v. only speaks of horfes and cavaliers, without any mention of biga or quadriga, which were not in use in Rome till long after Aescanius. And yet Dion, speaking of Caesar's games, says, the youth there combated in chariots: but it is thought by fome, that these were not the Trojan games, but races and combats of a different kind, proper for young people, of a more advanced age. The Trojan games were renewed by Augustus, after the victory at Actium, A.U. 726; began to decline under Tiberius, and terminated under Claudius.

TROJA, in Ancient Geography, a town of Chaula, in Cælia. Steph. Byz.—Alfo, a town or rather village of Egypt, in the vicinity of mount Troicus. This was the ancient habitation of the Trojans, who followed Menelaus to his captivity. Strabo.—Alfo, a town of Italy, at the bottom of the Adriatic gulf, in the country of the Veneti. Steph. Byz.—Alfo, a town of Asia, in Cilicia.—Alfo, a place of Italy, in the territory of the town of Larentum. According to Livy, it gave name to the place where Æneas landed, on his arrival in Italy; situated, according to Dion. Halic., four ftabia from the sea.

TROJA, or Troy, a celebrated city of Asia Minor, and capital of the small country called Troas, or Troade (which fee), and Phrygia Minor, situated to the north-west. See PHRYGIA Minor.

TROJA, in Geography, a city of Naples, in Capitanata, on the river Chilare, the fee of a bishop, containing six churches and six convents. It was built on an eminence, out of the ruins of Æneas, a city destroyed by Conflans II. It is said to have been founded by Baganus, catapar or viceroys of the province in the eleventh century, by order of the emperors Baflil and Conflantine, as a bulwark against the intruders of the Norman adventurers, and to have had its name in commemoration of the famous city, which, by its fall, immortalized the heroes of Greece. It was long accouunted a key to the Apennines, and as such was exposed to many afaults and sieges; 33 miles S.W. of Manfredonia. N. lat. 4° 24'. E. long. 15° 18'.

TROJA, a small island in the Mediterranean, near the coast of Italy. N. lat. 42° 43'. E. long. 11° 5'.

TROJAN, a town of Servia; 16 miles S. of Sabaca.

TROIL, among Tullies, denotes a thief, or occasion of merriment, by eating and drinking; called also a duggle.

TROILNSKÁIA, in Geography, a town of Ruflia, in the country of the Coftack, on the Don; 80 miles E. of Azoph.

TROIS-CINQUE, in the French Distillery, a term used to express their brandy, when of a peculiar strength, consisting of five parts alcohol and three parts phlegm.

The method of distilling the wines into brandy in France, is exactly the fame with that used with us to draw the spirit from our wafh or fermented liquor of malt, treacle, fugar, or whatever other kind. They only observe more particularly to throw a little of the natural lee into the fill along with the wine; and the poorest wines are fure to succeed best on the trial, making by much the finest brandies. We are apt to wonder that we cannot, from the wines of particular countries, distil their particular brandies; but the whole mystery confits in this, that they do not fend us over the fame wines which they use in distilling, because thefe latter would not be liked as wines, nor would keep in the bringing over. Sometimes in Scotland they meet with the poor and pricked wines, the fame that the French distil their brandies from; and from thefe they ditil a spirit, not to be known from the brandy distilled in France.

The lee which the French add in the dilillation gives the brandy that high flavour for which we so much esteem it; but they themselves like it fo much the worfe for it. The French notion of a proof strength, determined by the chaplet or crown of bubbles, is the fame with ours; and all their fine fpirits are found of this strenght.

But they have one particular expedient for thofe brandies which prove foul and feedy, or retain the taste of certain weeds which grow among the wines; they draw them over again, with a defign to free them from that adventitious flavour. In this operation they always leave out the fants, or rather they change the receiver as soon as ever the freem comes proof; then mixing together all that ran off before, they make a brandy ftronger than the ordinary kind, and this is what they call trois-cinque.

The distillers in France feareely ever bring their brandies higher than this; for they have the art to perufade the foreign merchant, that the phlegm of French brandy is

natural
natural and essential to it: but the truth is, that the spirit alone contains the flavour and excellence of the brandy, and it might as well be reduced to half its bulk for exportation, and sent over in the flate of alcohol, and then lowered with common water to the proper strength.

The French use no art in colouring their triois-cinque, any more than their common proof-brandy, nor do they add any thing to give them an additional flavour; the thing which they principally value themselves upon, both in regard to brandies and wines, being to make them perfectly natural: so that all the colour we find in their brandies, is acquired from the colour, and the time they are left in it. This is often twelve or eighteen months, sometimes two or three years; in this time they acquire a brown colour, and lose their acid taste.

The greatest adulteration of brandies is in England: the French have no temptation to do it, they having no cheaper spirit, since the prohibition of molasses in their country. The Dutch are in the same condition, having no molasses-spirit, and only a very coarse and nauseous fugar-spirit, and a yet worse malt-spirit of their own manufacture; a single gallon of which would spoil a whole piece of brandy. The French brandy also paying no duty in Holland, is as cheap, or nearly so there as in France itself. The duties being high upon brandy in England, it is greatly adulterated, and that with all sorts of spirits; as malt, molasses, cider, and fugar-spirits; and when this is done in a dexterous and sparing manner, the cheat is not easily detected. Shaw's Elflay on Dillbury.

TROIS MARIES, Les, in Geography, a town of France, in the department of the Mouths of the Rhone, by the inhabitants of the country held a sacred place, as having been, according to tradition, the residence of the three Maries, and Lazarus after our Saviour's crucifixion; 15 miles S. of Arles.

TROIS RIVIERES, Les, a town of Canada, on the river St. Lawrence, lying nearly midway between Quebec and Montreal, and so called from three rivers, into which the river St. Maurice is divided by two islands, whose streams unite about a quarter of a mile below the town, and afterwards fall into the great river of St. Lawrence. It was formerly the capital of the French government in New France, and much referred to by several nations which come down those rivers to it, and trade in various sorts of furs. The town contains about 250 or 300 houses, and ranks as the third town, in respect of size, in the provinces. It is one of the oldest settlements in the country, and its founder, it is said, calculated upon its becoming in a short time a city of great extent. It has lighthouse, however, increased but very slowly in size, nor can it be expected to improve much, at least until the country bordering upon the river St. Maurice becomes settled. The bank of iron ore in its vicinity, which promised opulence, is nearly exhausted. The fur-trade also, from which great benefit was expected, is now almost wholly transferred to Quebec and Montreal; and it is merely the small quantity of furs brought down the St. Maurice, and some of the northern rivers that fall into the St. Lawrence, nearer to the town of Trois Rivières than to Quebec or Montreal, that is shipped there. These furs are laden on board the Montreal ships, which float opposite to the town as they go down the river. The streets of Trois Rivières are narrow, and the houses in general small and indifferent, many of them being built of wood. In the town are two churches, an English Episcopal, and a large Roman Catholic parish-church, formerly served by the Recollets, or Franciscan friars, but the order is now extinct in Trois Rivières. The old monastery of the order is defetred, and the houses near it lie uninhabited. The college or monastery of the Jefuits, a large old stone-building in the same neighbourhood, has been converted into a gaol. The only religious order at present existing in the town is that of St. Ursula, the filter-house of which is the convent can well allow. This was founded by M. de St. Vallier, bishop of Quebec, in the year 1677: the building is spacious, and situated near that formerly belonging to the Recollets; and annexed to it under the same roof is a hospital, attended by the nuns, and containing about twelve or fourteen beds, for the convenience of patients, who are well accommodated. The filter of this convent are particularly distinguished for their curious work made of the bark of the birch-tree, and of which they manufacture pocket-books, work-baskets, dressing-boxes, &c. which they embroider with elk-hair, dyed of the most brilliant colours. They also make models of the Indian canoes, and various warlike implements used by the Indians. Almost all the birch-bark canoes in use on the St. Lawrence and Utawa rivers, and on the nearer lakes, are manufactured in Trois Rivières, and its vicinity, by Indians. These canoes are constructed very neatly, and on the water they appear very beautiful. The canoes are so light, that two men can easily carry on their shoulders one that is capable of containing six people. Their size varies, some being sufficient for only one person, and others capable of accommodating any number as far as twenty. They are navigated with paddles, and move with surprising velocity. The country in the vicinity of Trois Rivières has been represented by some French travellers as wonderfully fertile, and as one of the most agreeable parts of Canada; but, according to Mr. Weld (Travels through Lower Canada, vol. ii.) it is totally the reverse. It is a level barren tract, and so sandy, that in walking along many of the streets of the town, and the roads in the neighbourhood, you sink into the land at every step above the ankles. The air, also swarms with midges, indicating the low damp situation of the place; 44 miles W.S.W. of Quebec. N. lat. 46° 23'; W. long. 72° 20'.

TROIS RIVIERES, a bay on the E. coast of the island of St. John, in the gulf of St. Lawrence.—Also, a river of St. Domingo, formed by the union of three streams, and running into the sea on the N. coast of the island, near Port Paix.

TROISSEREUX, a town of France, in the department of the Oise; 4 miles N.W. of Beauvais.

TROITZ, or TROITSKOE MANOFR, that is, The Convent of the Holy Trinity, a convent of Rullia, which is so large, as at a little distance to have the appearance of a small town; and, like many convents in this country, is strongly fortified, according to the ancient mode of defence, being surrounded with high brick walls, strengthened with battlements and towers. Befide the convent or habitation for the monks, the walls inclose an imperial palace, and nine churches, constructed by different sovereigns. The convent is a large range of building encircling a court, and is far too spacious for the present inhabitants. It formerly contained 300 monks, together with a proportionate number of students; and was the richest ecclesiastical foundation in Rullia. The fraternity possessed considerable estates, upon which were at least 100,000 peastats: these estates, as well as all the other church-lands, being now annexed to the crown, the members receive small pensions. With their revenues their number has been greatly diminished, and they scarcely amount
amount at present to 100 monks. Their habit is black, with a veil of the same colour; they eat no meat, and the discipline of the order is very strict. This convent is distinguished in the annals of this country as the asylum for the Russian sovereigns, in cases of inauguration or danger; and is more particularly known to foreigners for the refuge it afforded to Peter the Great, when he put an end to the administration of his father Sophia; 40 miles from Moscow.

TROITZK, a town of Russia, in the government of Penza; 76 miles W.N.W. of Penza. N. lat. 54° 43' 34". E. long. 43° 34'.

TROITZKOE, a town of Russia, in the government of Upha; 200 miles E. of Upha. N. lat. 54° 40'. E. long. 61° 44'. Alfo, a town of Russia, in the government of Upha; 16 miles N.E. of Sergievsk.

TROITZKOV, a town of Russia, in the government of Simbirsk; 20 miles N. of Sizran.—Alfo, a town of Russia, in the government of Archangel, on the Pineg; 38 miles S.E. of Pineg.—Alfo, a town of Russia, in the government of Upha; 40 miles N.W. of Belebcov.—Alfo, a town of Russia, in the government of Tobolok, on the Oby; 204 miles N. of Tobolok. N. lat. 61° 24'. E. long. 42° 50'.—Alfo, a town of Russia, in the government of Tobolok; 40 miles N.W. of Naram.—Alfo, a town of Russia, in the province of Ufug; 32 miles S. of Lalk.—Alfo, a town of Russia, in the government of Kolrom; 40 miles S. of Vetugala.—Alfo, a town of Russia, in the government of Kolrom; 12 miles N. of Vetugala.—Alfo, a town of Russia, in the government of Tobolok; 14 miles N.E. of Tafhevolko.

TROKI, or TROCKI, a town of Lithuania, and capital of a palatinate to which it gives name. This town was built by the great duke Gedimyn, in the year 1321, and is situated among lakes; it was formerly the residence of the great dukes, who afterwards removed their seat to Wilna. In the year 1655, it was demolished by the Russians; 16 miles W. of Wilna. N. lat. 54° 33'. E. long. 24° 44'.

TROLHETTA, a town, or rather village, of Sweden, in Welf Gothland; 15 miles E.S.E. of Uddevalla. For an account of the canal of Trolhettta, see Caskal.

TROLLING, among Anglers. To troll, is to fish for pikes with a rod whole line runs on a reel. See Pike-Fishing.

TROLLIUS, in Botany, a name given to this plant, our Globe-flower, by Conrad Geyner, which, though of barbarous etymology, has been universally retained. This might be attributed to respect for its illustrious author, were there not so many had reasons for which barbarous names have been admitted. The derivation of Trollus is said to be from an obsolete German word trol, or trölen, expressing any thing globular. Hence it is synonymous with the English name of this flower; as well as with the French one, boule d'or. Professor Martyn says, after Haller, "Trollilium, in German, seems to signify a magical flower." From what we have seen and heard of the feftive usages of the Globe-flower in the north of Europe, there appears to be some idea of this kind attached to it, which nevertheless may not be the origin of the name.---Linn. Gen. 282. Schreb. 378. Wild. Sp. Pl. v. 2. 1333. Mart. Mill. Dict. v. 4. Sin. Fl. Brit. 597. Ait. Hort. Kew. v. 3. 359. Pursh 391. Salif. Tr. of Linn. Soc. v. 8. 302. Juli. 233. Lanarcck Illistr. t. 499. Gartn. t. 119.---Clas and order, Polyandria Polygynia. Nat. Ord. Multi-flugas, Linn. Ranunculaceae, Jull.

Gen. Ch. Cal. none. Carp. Petals about fourteen, sometimes fewer, roundish-ovate, concave, converging, decussate, three in each outer row, five in the innermost. Nectaries about nine, linear, flat, incurred, perforated at the base within. Stam. Filaments numerous, linear, much shorter than the corolla; anthers linear, erect. Fil. Germens superior, numerous, stelle, columnar; styles short; stigmas pointed, shorter than the stamens. Peric. Capsules numerous, collected into a head, oblong, compressed, curved, pointed, bursting at the inner edge, of one cell. Seeds numerous, obovate, angular, polished, inserted along the inner edge of each valve.


Obf. Linnaeus erroneously in Gen. Pl. calls the capsules ovate and fingle-fed.

1. T. europaeus. European Globe-flower. Linn. Sp. Pl. 782. Willd. n. 1. Fl. Brit. n. 1. Eng. Bot. t. 28. Fl. Dan. t. 133. Lightf. Scot. 295. (Ranunculus globosus; Ger. Em. 955. R. fextus; Camer. Epit. 38. Globe Crowfoot; Petiv. Herb. Brit. t. 43. f. 2.)—Petals closely converging. Nectaries the length of the stamens. Native of mountainous, rather moist, meadows and pastures in the north of Europe, especially Lapland, Sweden, Germany, Switzerland, Wales, the northern counties of England, and Lowlands of Scotland, flowering in May and June. The root is perennial, of many flout fibres. Herb smooth. Stem erect, two feet high, round, leafy, branched in the upper part. Leaves deeply divided into many wedges-shaped, deeply cut and toothed, acute, spreading lobes; the radical ones on long stalks; the rest nearly feliaceous, alternate. Flowers solitary at the naked summits of the branches, erect, globar, above an inch wide, of an elegant bright uniform yellow. Nectaries obtuse. Seeds black. Haller and Lightfoot say the flowers are fragrant, which we have not observed. The Scotch call them Lucken-gowarts, or Cabbage-dailles. In Weltmoreland we have seen them flowers gathered by the peasants, with great feliavity, and made into garlands for the young men and women, as well as to decorate the porches of their cottages. Linnaeus mentions them as used in Sweden to strew the floors on holidays.

2. T. asiaticus. Asiatic Globe-flower. Linn. Sp. Pl. 782. Willd. n. 2. Ait. n. 2. Curt. Mag. t. 235. (Hel-leborus aconiti folio, flore globo cresto; Amm. Ruth. n. 101.)—Petals spreading. Nectaries nearly equal to them in length. Native of the banks of rivers in Dauria. Amman.—A hardy, but not very common, perennial in our gardens, flowering in May or June. It requires a mixture of loam and bog earth, in a northern exposure, and must have due supplies of water in dry summers, for want of which we have, after several years successful cultivation, lost the plant. This species is very like the former in habit, though somewhat larger, with more copious and acute teeth, or ferratures, to the leaves. The flowers however are distinguished by their spreading petals, of a rich orange-colour, and the still deeper hue of their large and numerous nectaries, almost, or quite, equal to the petals in length. The flower being much more open than in T. europaeus, the nectaries, as well as stamens and pistils, are displayed in full view, and the whole makes a very handsome appearance.

TROLLEUS, in Gardening, comprises some hardy, herbaceous, flowery, perennial plants, as the globe ranunculus, or globe-flower, among which the species cultivated are the European globe-flower (T. europaeus); and the Asiatic globe-flower (T. aflaticus).

These two plants are of a rather tall hardy growth, affording considerable ornamental effect in their large flowers, which grow in the first fort in a particular converging manner, or turn in an inward direction, or somewhat revolute mode, so as to give them a perfect globular form, from which they derive the name of globe-flower. They appear in both forts in the beginning of summer. Those in the Asiatic or latter kind, however, are not convolutes, but spread out and shew some of the inner parts, which are of a fine saffron-colour, and display a striking elegant singularity in their appearance, which renders them highly valuable for their use in the flower-garden. They are both desirable flower-plants.

Method of Cultivation.—The means of propagation and increafe in these plants are occasionally by sowing the fresh seeds of them, and the parting of their roots.

In the former method, the seeds should be sown in shallow drills, in a somewhat flaky border or other place, in the autumn or spring, covering them in to the depth of nearly half an inch, when they readily grow and produce plants for setting out in other parts.

In the latter mode, the roots should be taken up in the autumnal season, when the leaves decay and fall off, or very early in the spring months, and be divided into several parts, but not by any means into too small slips, and then be planted out either where they are to remain, or in nursey rows, where they are to continue for twelve months, when they will be ready to set out finally.

The seedlings should be set out in summer, or towards the autumnal season, in rows about six inches asunder, where they are to continue about six or eight weeks, to become perfectly strong, and be finally planted out in places where they are to remain.

And the root-plants, which are set out in rows, may be removed in the autumn or spring seasons to the spots where they are finally to grow and continue.

As these plants are natives of moist and shady situations, they are generally the most successfully planted in places where the circumstances are the same in this climate, though they will commonly grow very well in any border or compartment of the garden which is not over dry, or without moisture.

These plants multiply extremely fast by the roots, and are of a great many years duration. They are highly deserving of a situation in all curious collections in the flower-gardens and pleasure-grounds, where they have a fine effect in the clumps, borders, and other compartments.

TROMBA, in Geography, a small island near the coast of Istria. N. lat. 45° 31'. E. long. 13° 52'.

TROMBA, in the Italian Music, either denotes the common trumpet, the buccina of the ancients, or the modern fophaeton, but more properly our trumpet.

TROMBETAS, in Geography, a river of Brazil, which runs into the river of the Amazons at Pauxis.

TROMBETTA, in Ichthyology, a name given by the Italians to the fifth commonly called sticpolax by authors. See Trumpet-Fish.

TROMBETTA, in the Italian Music, a small trumpet, being the diminutive of tromba.

TROMBONE, a wind-instrument blown by the mouth, and resembling in form the military trumpet, of which it is the base, the name implying the great trumpet. It differs, however, from the trumpet in being divided into two branches or parts fitted to sockets, giving the performer power to lengthen and shorten the general tube at his pleasure, according to the different tunes which he wishes to produce. On which account it is called in Latin, tuba ductilis. The Germans call it paufaune, and the French facuboute.

Zarlini has described this instrument under the title of trombone amovibile, and the quantity and quality of the founds it is capable of producing, very exactly.

"The trombone," says he, Supplimenti Musica, lib. iii. cap. 5. "is an instrument truly worthy of consideration, which I have seen and often heard by good performers, beginning at the lowest sound which it is capable of producing; when, being closed in all the joints, it can produce no found less than the octave; then from the octave to the 5th; nor from that can it produce a lews interval than the 4th; and from the 4th to the 5d major, then the 3d minor, after which another 4th, the key-note, from which it can form a complete series of eight notes. No other founds than these can be produced without altering, moving, and lengthening the instrument."

Père Merienne, in his experiments on this instrument, (Harmon. Infrac. lib. ii.) found it capable, by lengthening or shortening the lower part of the instrument, of forming a regular series of fifteen founds, from double C in the base, to C on the sixth line.

The instrument is made of brass, of which there are five forts: canto, alto, tenor, bafe, and double-bafe. It is much ufed in the large churches of Germany. They can produce all the tones and semitones in gradation. The manner of writing for them is the fame as for different voices, and on the fame staff of five lines.

Canto,
The double-bafe of this instrument goes a 5th lower than any other bafe. It has the finest effect in funeral processions, and in general in melancholy strains. We never hear it with more pleasure in England than in Handel’s dead march in Saul. Its use should be rare, and its effects would be more striking. But tromboni and double-drums are now so frequently used at the opera, oratories, and in symphonies, that they are now a nuisance to lovers of pure harmony and refined tones: for, in fact, the vibrations of these instruments produce noise, not musical sounds.

TROMELIA, in Ancient Geography, a town of the Peloponnesus, in Achaia Propria. TROMNES, in Geography, a small island in the North sea, near the coast of Lapland. N. lat. 68° 5'. E. long. 15° 26'.

TROMP, MARTIN HARPERTZOOON, in Biography, a famous Dutch admiral, was born at the Brill in 1597. At the age of eight years he was destined for the sea-service, and was sent on board a ship bound for the East Indies. Whilst he was very young he was taken prisoner by an English pirate, with which he continued for two years, acquainting himself with the stratagems and manoeuvres practised in that kind of service: and being afterwards employed in the Mediterranean, he was captured by the Turks, from whose custody he had the good fortune to make his escape. In the service of the States, he accompanied the famous Peter Hein in his various expeditions, and being his favourite, fought by his side when he was killed. By various gratifications he was advanced to the rank of admiral, and in February 1639, he pursuaded a Spanish squadron, and in an engagement off Graveline, captured and destroyed five men of war and four frigates. In October of the same year he engaged another Spanish fleet in the Downs, and obtained a glorious victory, taking or destroying the greatest part of the fleet, though sheltered by the English. On this occasion he saved the life of Oquendo, the Spanish commander, by sending a frigate to his relief, when his own ship was sinking. His name now became famous through Europe, and the king of France enrolled him by patent among the French nobility. In 1652, Tromp and Blake, the English admiral, had a rencontre in the Downs, in consequence of which the Dutch fleet, after having sustained some losses, was obliged to retire. Having on another occasion met with a disappointment in fulfilling his orders for attacking Blake by reason of a storm, he was disgraced and recalled, and De Ruyter was appointed to supercede him; but his command was restored to him in the same year. In November he attacked Blake, commanding an inferior force, in the Downs, and after a severe engagement, obliged him to retire into the Thames, with the loss of five ships. Tromp with some degree of arrogance triumphed, and fixed a broom on his top-mast, intimating vain-gloriously that he would sweep away the English from the Channel. This triumph, however, was of no long duration. In February 1653, the two powerful fleets of Holland and England had an engagement which lasted three days; one of which terminated in the loss of eleven men of war to the Dutch, but it is said that Tromp lost no reputation in this action. This engagement was succeeded by another off Nieuport, in which Tromp and De Ruyter mutually refused each other from imminent peril; but the termination of the contest was unfavourable to the Dutch, who suffered considerable losses. These two Dutch commanders made complaints to the States of the insufficiency of their equipment, and great exertions were made to supply them with both ships and men. In July, Tromp with eighty-five ships defeated the English fleet with ninety-four, but before they could come to an engagement, which was prevented by a storm, the Dutch fleet was augmented to 120 sail. On the 6th of August the opposing fleets rushed to action. The first day was indecisive: the second was unfavourable to Tromp, who, according to his usual practice, pierced the enemy’s line, and was surrounded, being defeated by his own squadron. Whilst he was fighting with desperate valour, he fell by a musket-shot, as he was giving orders on the deck, exclaiming, before he expired, “Take courage, my lads, I have run my course with glory!” The Dutch, having lost their commander, could not be re-animated, and a disaffraught, though dearly bought, defeat closed the day, and also the war. The remains of Tromp were interred with funeral honours in the church at Delft, and a magnificent mausoleum was erected to his memory. Un. Hist. Moreri.

TROMP, CORNELIUS, the second son of the preceding, was born at Rotterdam in 1629, and having been educated with a view to the navy, he was appointed, at the age of 19, to the command of a ship of war against the Corsairs on the Barbary coast. When the war broke out between England and the United Provinces in 1665, he was one of the admirals in the sea-fight off Solebay, when the Dutch fleet was defeated, though by his masterly retreat the victors were prevented from making the most of their success. In some subsequent engagements Tromp distinguished himself by his valour, though not always unbanded with temerity, and seldom with any great success. Complained of by De Ruyter, who was superior in command, he was superseded; but was he again employed till the year 1673, when the two rival admirals, being reconciled, fought
in concert and mutual assistance in the engagements with the French and English, off the Dutch coast, in June and August. After peace with England had taken place, Tromp, in 1675, visited London, and being honourably received, was made a baronet by Charles II. Having this year conducted a fleet to succour Denmark in its war with Sweden, he was invited by the king with the order of the Elephant. Upon the death of De Ruyter, in 1677, he was appointed his successor as lieutenant-admiral-general of the United Provinces. He continued, however, in the service of Denmark, and at the peace withdrew from the navy; but in 1691, when the war with France was renewed, he resumed his command. Whether a fleet was fitting out, he was seized by a disease which terminated his life at Amsterdam, on the 29th of May, in his 63d year. His remains were deposited in the magnificent tomb of his father at Delft. "Un. Hist. Moreri.

TROMPE, in the "Manges." See DESCEY.

TROMPERWICK, Gulf of, in Geography, a bay of the Baltic, on the north-east coast of the island of Ufedom; a dangerous road for vessels which are driven thither by the wind, or misguided by darkens. N. lat. 54° 40'. E. long. 13° 40'.

TROMSOE, an islet on the coast of Lapland, near the Storotnufis, or Great Rocky Cape; bare, in the Scandianvian dialect, signifying great, and hence probably are derived our words flære and flære-homu. Here, in the latitude of 69° 38', a village has been lately founded under the protection of the Danish government, and endowed with peculiar privileges and immunities; being intended to facilitate the exchange of commodities, and to diffuse the benefits of civilization over these fequeiterated regions. For two whole months at Tromsoe the sun never sets; and as he wheels his oblique apparent course, he skirts the northern horizon at midnight, and again attends with fiercer beams in progress of the day, the sky being, with little variation, bright and cloudless. The change of temperature is confined to a very narrow range. The greatest heat, on the 15th of July, was observed at 2 o'clock in the afternoon, when the thermometer rose to 61° or 62° Fahrenheit, and the greatest cold at 1 o'clock in the morning, when the thermometer stood at 50° or 52°. This low islet is covered with birches, though the prospect was fertilized by patches of snow lying still unmelted in the recesses, the gardens, and the fields. Von Buch's Travels in Norway and Lapland.

TRONAGE, TRONAGUM, an ancient custom, or toll, paid for the weighing of wool.

The word comes from trona, an old name for a beam used in weighing.

TRONATOR, an officer of the city of London, whose business it was to weigh the wool brought into that city.

TRONCHIN, Theodore, in Biography, a celebrated physician, was born at Geneva in 1700, and being disappointed in his expectations from lord Bolingbroke when he visited in England, he repaired to Leyden in order to study under Boerhaave, whose Elements of Chemistry he had perused; and after passing through a course of medical instruction, he graduated M.D. in 1730, publishing on the occasion a dissertation "De Nymphà," patronized by Boerhaave. He settled at Amsterdam, and became a member of the college of physicians and an inspector of hospitals. Here he distinguished himself as a zealous promoter of inoculation. In 1754 he returned to Geneva, and ranked among the most distinguished practitioners in Europe, not only on account of his established reputation, but from the number and quality of his patients. His native city erected in his honour a chair of medicine, and the Society of Palfron admitted him into their body. He was employed by the duke of Orleans in the inoculation of his children, and by other persons of rank at Paris; and in 1763 he went to Parma, for the purpose of inoculating the family of the duke. Although he declined to comply with the invitation of the empress of Russia to spend two years at Peterburgh, he accepted, in 1766, the offer of being principal physician to the duke of Orleans. His practice was simple, administering few medicines, and relying chiefly on diet and regimen, with the regulation of the passions and affections. In nervous complaints abounding in a luxurious capital, he recommended temperance and exercise. With the practice of inoculation, he patronized the cool treatment in the natural small-pox, and also the free admission of air in other diseases. On mothers he urged the fencing of their children. In the exercise of his profession he was exemplary for his humanity and charity. In conversation he was mild and modest, and in his manners agreeable and polite. He had little time for writing; but besides his inaugural dissertation already mentioned, he published a treatise "De Colica Pidonis," in 1757, and he contributed several articles to the "Encyclopædia," and to the "Memoirs of the Academy of Surgery." Of the works of Bailly, he gave an edition in 1762, with a preface on the state of medicine. He had the honour of being enrolled as a member of the chief medical and scientific societies in Europe. He died at Paris in 1781, in the 73d year of his age. Nouv. Dict. Hist. Gen. Biog.

TRONCO, in the Italian Mufes, by the French called coup de grace, is used to intimate to the voices as well as instruments, that they are not to draw out the found to its natural length, but cut it short; that is, only continue it long enough to be heard, by which means there is a small silence between each found; which has a very good effect in expressioms of grief, to make signs; and also in expressioms of wonder and surprize, &c.

TRONCONNE, or TRONCONNE, in Heraldry, denotes a crois or other thing, cut in pieces, and dismembered; yet so as that all the pieces keep up the form of a crois, though flat at a small distance from one another.

TRONE, in Agriculture, a term applied provincially to a drain or small trench of that kind, in some places.

TRON, in Geography, a town of Sweden, in Helsingland; 7 miles N.W. of Soderhamn.

TRONE Pound, in Scotland, contains twenty Scotch ounces. But because it is usual to allow one to the score, the trone pound is commonly twenty-one ounces.

TRONE Stone, in Scotland, according to sir John Skene, contains nineteen pounds and a half.

TRONE Weight was the fame with what we now call Troy weight.

TRONECKEN, in Geography, a town of France, in the department of the Sarre; 12 miles S.S.E. of Traarbach.

TRONINGE, a town of Sweden, in the province of Halland; 8 miles E. of Halmfled.

TRONIS, in Ancient Geography, a country of Greece, in the Phocides, which contained many ancient monuments.


TRONTO, a river which forms a boundary between the marquisate of Ancona and the province of Abruzzo Ultra, and runs into the Adriatic, N. lat. 42° 52'. E. long. 13° 59'.

TRONUM, in Ancient Geography, a place on the route from Dyrrachium to Salone, between Pons Tili and Bilidium. Anton Itin.

TRONZAN,
TRO

TRONZAN, in Geography, a town of France, in the department of the Po; 7 miles N.W. of Turin.

TROO, a town of France, in the department of the Loir and Cher; 10 miles S.W. of Vendôme.

TROON, a town of Scotland, and county of Ayr; N. of Troon Point.

TROON Bay, a bay on the W. coast of Scotland.

TROON Point, a cape on the W. coast of Scotland, and county of Ayr.

TROONGOOMBA, a town of Africa, in the kingdom of Ludamar; 12 miles S.W. of Benown.

TROOP, a small body of horse, or dragoons, usually about fifty or fixty; commanded by a captain, captain-deutenant, cornet, quarter-maister, and three or four corporals, who are the lowest officers in a troop; answering to a company of foot.

TROOPER, Independent, is a troop that is not embodied in, or joined with, any regiment.

TROOPER, To beat the, is the fame with beating the assembly.

TROOPERS of the Household. See Household.

TROOP-SHIP, is generally used to conduct troops from one place to another.

TROOPER, in the Military Art, a private man in a troop of horfe.

TROPÆA, in Mythology, a name given to Juno, because she was thought to preside over triumphs; and in thefe ceremonies facrifices were offered to her.

TROPEA, in Ancient Geography, a town of Italy, in Bruttium, towards the west. As the name signifies a trophy, it is thought that the place affirmed it after a victory gained here by Sextus Pompeius.

TROPEA DRUFT, a town of Germany, according to Ptolemy, situated between the Sala and the Rhine, in the place where Drufus died; though this fact is questioned on the authority of Dion Cassius, i. xiv. Tacitus reports that it was the place where Tiberi us was failed emperor by the Roman army. The Romans were accustomed, after their victory, to raise a trophy, confulting of the arms of the vanquished, and to inscribe on its base the names of all the nations which had participated in the defeat; and in process of time this trophy became a town.

TROPEA POLLUX, or Trophies of Pollux, were situated in Sparta, beyond the temple of Efealupius, according to Paufanias, who adds, that Pollux erected them after a victory which he gained over Lynceus.

TROPEA POMPEI, a name given to a monument erected by Pompey, after having terminated the war of Spain against Sertorius, upon which he caused to be inscribed, according to Pliny, that from the Alps to the extremity of Farther Spain, he had subdued 876 towns. This monument was adorned with the spoils which had been preserved, and on this account Strabo (l. iii. p. 156.) designates it by the term ἀργυροῦ φιλίας. It was situated on the way which entered Spain by the plain of Juncaria, at the distance of sixty-three miles from Narbonne.

TROPEA ROMANUM OR SYLVA, the trophies of the Romans and of Sylla, were erected by the Romans and by Sylla on the plain of Cheronza, in Boetia, to commemorate a victory obtained over Taxilus, general of the army of Mithridates. Paufanias.

TROPEA, a town of the Peloponnesus, in Arcadia, upon the route from Porphos to Telphusa, to the left of Ladon, and near the wood called Aphrodiasium. Paufanias.

TROPEA AUGUSTA, or TROPEA AUGUSTA, a town of Italy, in Lignaria, according to Ptolœmy, near Portus Herculis.

TROPEA AUGUSTUS, or Trophies of Augustus, situated near the sea, between Nice and Portus Herculis.

TROPEOLUM, in Botany, the diminutive of tropæum. Vol. XXXVI.
TROPÆOLUM.

Sp. Pl. 490. Willd. n. 5. Ait. n. 2. Curt. Mag. t. 23. (Cardamum ampliori folio, et majori flore; Feuill. Peruv. v. 3. t. 4. t. 8. f. 1. Viola indica feconda, nauturii fapore, maxima odorata; Hern. Lugd.-Bat. 628. t. 629.) —Leaves peltate, wavy, with blunt npted angles. Petals obtuse. —From the same country. Introduced into England in 1686, as appears by the manuscripts of Peter Collinson. This is now the most commonly cultivated species, seen in cuttings and green-house; as it requires, without any care, from self-sown seeds. The flowers are abundant from June till the whole plant perishes by the autumnal frosts. This species is larger than the foregoing, especially its petals, which are also much more rounded and obtuse. A daughter of Linnaeus is recorded as having observed a kind of flashing light from these flowers in an evening. We have watched for this phenomenon, but know not whether we ever perceived it, or whether our eyes were merely dazzled by the brilliancy of the colours. The seeds are hot and pungent, much used for pickles; and the flowers are often intermixed with fallad herbs, both for ornament and flavour.

There is a double-flowered perennial variety of this species, common in greenhouses, and readily increased by cuttings.

Another variety, with small jagged petals, called T. pinnatum in Andr. Repof. t. 535, and Ait. Epit. 375, came up under our inspection in a bed of the common T. majus, and having been immediately sent to Meffrs. Lee and Kennedy at Hammersmith, in 1806, was preserved, and differed by cuttings all over the kingdom. It fearfully ever attempts to form any seed, and is cultivated just like the double kind, on whole botanical history, and origin, it appears to throw considerable light.

3. T. hybridum. Male Indian-crefs or Nafturium. Linn. Mant. 64. Willd. n. 9. "Berg. Ait. Holm. for 1765. 32. t. 1." —Leaves wedge-shaped, five-lobed, entire, scarcely peltate. —A variety of the leaf, which, according to Linneaus, sprung up accidentally in a garden at Stockholm. It rarely produced seed in the Upfald garden, but was propagated by cuttings. A seedling plant however is preferred in the Linnean herbarium. The leaves are palmate, but wedge-shaped at the base, deflexed, on very long slender footstalks, whose inflorescence is quite at the bottom, nor do we find a single leaf in any degree of a petal. The nectar is fast to be obtuse; the corolla scarcely ever of any determinate form. We retain this as a species, merely in conformity to our predecessors. Its history is presumed to be authentic; but a few varieties are more extraordinary.

4. T. peregrinum. Fringed Indian-crefs or Nafturium. Linn. Syst. Nat. ed. 10. v. 2. 998. Mant. 2. 371. Hellen. Diff. 19. Willd. n. 4, excluding the synonym of Jacquin, and perhaps of Feuillée. —Leaves peltate, palmate, deeply five-lobed. Petals all jagged and fringed. Nectaris flatly, about twice the length of the corolla. —Native of New Granada, from whence it was sent by Mutis and his pupils to Linnaeus, who also received a garden specimen from his friend Duchesne. This species is not known in England. The leaves are all slightly, but uniformly, peltate, with five, rarely seven, deep lobes, various in breadth and acuteness, the middle one sometimes three-cleft, the two next occasionally having a lateral external lobe. Flowers rather smaller than in T. minus, though the nectar is as long, and of the same taper form, scarcely curved, and by no means hooked. Petals unequal in size, all deeply and irregularly laminated, with fine capillary segments. We find these segments variable in breadth, like the foliage, in our numerous native specimens, but their general aspect is the same. Lamarc's t. 277. f. 3, represents this plant. Feuillée's plate and description, if good for any thing, must belong to a different species, or variety, three of whose petals are very small, and quite entire. His nectar is too imperfectly drawn for us to determine any character from thence. We have seen in the foregoing species how liable the petals are to the most extraordinary variation, so that we dare not, from Feuillée's figure alone, attempt to define him as a distinct species.

5. T. advena. Hooked Indian-crefs or Nafturium. Sm. Tour on the Continent, ed. 1. v. 1. 158. ed. 2. v. 1. 165. (T. peregrinum; Willd. n. 4. Ait. n. 3. Jacq. Hort. Schoenbr. v. 1. 51. t. 98. Andr. Repof. t. 617. Curt. Mag. t. 1351.) —Leaves peltate, palmate, deeply five-lobed. Two petals jagged; three smaller fringed. Nectaris hooked, the length of the larger petals. —Native of Peru. Cultivated in the open air at Gibraltar, where it is called the Canary-bird flower, and perhaps in other parts of Spain. In Germany, England, and even the south of France, this is a greenhouse plant, very tender with us, and seldom ripening seed. The leaves do not much differ from the real T. peregrinum, but the flowers are coquettishly very distinct, nor do any specimens or figures, that we have seen, shew them to be variable in any degree worthy of notice. Their calyx is pale green, with a remarkably hooked spur, hardly an inch long if it could be straightened. Petals lemon-coloured; the two uppermost deeply jagged, rarely hair-pointed; three lower much smaller, oblong, undivided, copiously fringed. Jacquin's figure displays a luxuriance of foliage greater than we have met with, some leaves having seven, more or less pinnatifid, lobes. There can be no doubt of this being a very distinct species. A figure of it was drawn for the 30th plate of our Speciosiæ Botanicae, but that work never proceeded to a third fasciculus, and the figure would now be superfluous.

6. T. pentaphyllum. Five-leaved Indian-crefs or Nafturium. Lamarcch. Diff. v. 1. 612. Illufr. t. 277. f. 2. Willd. n. 5. (T. quinatum; Hellen. Diff. 20. t. 1.) —Leaves quinate; leaflets ovate, entire, falked. Petals undivided, shorter than the segments of the calyx. —Gathered by Commerfon at Buenos Ayres, where this elegant and singular species climbs amongst Indian figs, and other shrubs, according to a manuscript note before us. The stem is slender, clothed with numerous, irregularly scattered, leaves, on footstalks: an inch or an inch and a half long; leaflets on short partial stalks, acute, all undivided; the central one an inch in length; the two nearest the stalk not half so large. Flowers numerous, folicular, on axillary stalks extending rather beyond the leaves. Tube of the calyx above an inch long, conical, deep orange-coloured, contracted towards the end, which is oval; segments about a quarter as long, ovate, acute, green towards the point, two of them prominent, and rather larger than the rest. Petals not discernible in the flowers we have examined. Professor Hellenius describes them "ovate, entire, nearly sessile, a quarter the length of the segments of the calyx," which answers to Lamarc's definition.

Three more species of this genus are described in the Flora Peruviana, one of them having only two petals; but of these no specimens have fallen under our inspection.

TROPÆOLUM, in Gardening, furnishes plants of the herbaceous, annual, and perennial, trailing and climbing kinds, among which the species cultivated are the small Indian crefs or nafturium (T. minus); and the great Indian crefs or nafturium (T. majus).

In the first sort, there are varieties with deep orange-coloured flowers inclined to red, with pale yellow flowers, and with double flowers.

And in the second kind, there are varieties with pale yellow
yellow flowers, orange-coloured flowers, and the double-flowered.

It may be noticed that they are both natives of Peru, and commonly esteemed to be annual plants, though they may be continued through the winter, if they are kept in pots, and sheltered in a greenhouse or glass-cave, in the same manner as the variety with double flowers.

The flasks will climb fix or eight feet high, when they are trained up, and thus the flowers make a good appearance; but when they trail upon the ground, they will spread over the neighbouring plants and become unhappily: the flowers are frequently eaten in salads; they have a warm taste, like the garden cress, and hence the plant has its common name naffurtium; they are likewise used for garnishing dishes: the seeds are pickled, and by some are preferred to most pickles for sauce, under the false name of capers.

Method of Culture.—These plants, in all the single varieties, may be increased by seeds, which should be sown in the spring in patches where they are to flower in the borders, or in drills in the garden.

They afterwards only require to be kept free from weeds, and to be well supported by sticks.

The double variety must be increased by planting cuttings of the branches in pots of light mould in the early part of the summer, placing them in the shade, and giving frequent light waterings, but not too freely in the winter months: those planted early may be rendered more forward by being plunged in a moderate hot-bed.

It requires to be protected in the greenhouse in the winter, being well supported with sticks.

Both the sorts are cultivated in the garden as flowering plants, and for culinary use in salads and pickles, being often in the former view trained against fences and walls, or to run on trellises, railing, palings, hedges, the sides of arbours, and some other kinds of supports. Also to run on branches sticks set in the borders and other parts.

In the latter intention, the common single sorts and varieties are often grown, which supply young tender leaves and berries that are much esteemed by some for the purpose of eating, the former as a warm relishing agreeable fallad article, and the latter as a very pleasant sort of pickle while young and fresh. The flowers are also warm in their taste, and afford a very ornamental garnish, in many cafes, both for fallad dishes and those of the meat kind. When the plants are raised in these views, the seeds should be sown in the small compartments of the kitchen garden to the later spring months, in small patches or shallow drills to the depth of an inch, and the plants when up have the support of a few branchy sticks, by which means they afford supplies in each of these ways for two or three months.

They all afford variety in the borders, clumps, &c. in the summer, and the double sorts among potted plants.

TROPÆUM Q. Fabii Maximi Epsidionis, the trophies of Fabius, &c. in Ancient Geography, were situated, according to Strabo, near the place where the Iere discharges itself into the Rhine, and on this spot 30,000 Romans, commanded by Fabius, defeated 200,000 Gauls, in commemoration of which, the general caused to be erected on the field of battle a trophy of white stone.

TROPEUS, in Mythology, a name given to Jupiter, for the fame reason that Tropæa was given to Juno.

TROPATENA, in Ancient Geography, a country of Asia, extending, according to Ptolemy, from the territory of the Celi-Marephi to that of the Amaranii.

TROPE. Tropus, in Rhetorice, a word or expression used in a different fene from what it properly signifies.—

Or, a word changed from its proper and natural significations to another, with some advantage.

As when we say an afo, for a fluid person; thunder-bolt of war, for a great captain; to wash the blackamoor white, for a fruitless undertaking.

This change of fene is never to be used, but where it gives a force and dignity, or renders the discurso more significant, weighty, and graceful.

It is called trope, τρωπός, from the Greek, τρυπετος, ςυρβ, 1 change; because the words are here transferred from the things they properly import, to others which they only import indirectly: and that tropes only signify the things they are applied to, by reason of the connection and relation those things have with those others, whose proper names they are.

This change, or inversion, is performed various ways; but chiefly four: whence arise four principal tropes; viz. the Metaphor, Metonymy, Synecdoche, and Irony; which see respectively.

Some authors confound trope with figure; but they are very different things. Moliére authors, as F. de Colonia, &c. make figure the genius, and trope a species; defining figure to be, an ornament in discourse, by which it is raised above the common language; and trope to be that peculiar kind of ornament which confines in the change of the fene, &c. But Voltaire makes trope and figure to be two collateral and independent things; defining trope to be the change of the fene, &c. and figure to be any ornament, except what becomes fo by such change, &c. See Figure.

With regard to the difference between tropes and figures we may observe, that tropes mostly affect single words, but figures whole sentences: a trope conveys two ideas to the mind by means of one word; but a figure throws the sentence into a different form from the common and usual manner of expression; and besides, tropes are chiefly designed to represent our thoughts, but figures our passions. The reaons which have occasioned the introduction of tropes are, according to Quinncilian, three: viz. necessity, emphasis, and beauty. Tropes were first introduced from necessity, because no language contains a sufficient number of proper words to express all the different conceptions of our minds. Tropes do also on many occasions express things with greater force and evidence than can be done by proper words; thus when Virgil (Aen. lib. vi. v. 842.) calls the Scipios two thunder-bolts of war, he gives us a more lively image of the rapid force and speedy success of their arms, than could have been conveyed by a long description in plain words. And moreover, beauty and ornament have been another cause of the use of tropes; and it is the business of an orator to entertain his hearers, at the same time that he instructs them. Accordingly some subjects require a more florid and elegant address than others, and variety of expression is also pleasing in a discourse.

The following directions, however, are proper to be observed in the choice of tropes. As every trope gives us two ideas, one of the word expressed, and another which by means of that the mind connects with it; it is necessary that the relation between these two should appear very plain and evident; for an obscure trope is always faulty, unless where some particular reason makes it necessary; and therefore tropes ought not to be too far-fetched, lest they should thus be rendered obscure. Again, as a trope ought to be very plain and evident, so likewise should it bear a due proportion to the thing it is designed to represent, so as neither to heighten nor diminish the just idea of it. Poets, however, are allowed a greater liberty in this respect than orators. Further, as a moderate use of tropes, judiciously applied,
beauties and enlivens a discourse, so an excess of them causes obscurity, by running it into abitrude allegories and riddles. Moreover, as one use of tropes is pleasure and entertainment, we should endeavour to make use of such as are smooth and easy: and if it should be necessary to use a harsh trope, it is proper to soften it by some precaution. Finally, care should be taken how we transfer tropes from one language into another. It was customary for the Roman soldiers to carry their money in their girdles; hence it was the same thing with them to say, a perfan had left his girdle (Hor. Ep. lib. ii. cp. 1.), as that he had left his money. And because the Romans wore the toga in time of peace, and a different garb when engaged in war, their writers sometimes use the word toga to signify peace. But as neither of these customs is in use among us, nor whether the tropes fuit our language, or be generally understood by us. There is also a beautiful trope in the account of St. Paul's shipwreck, in the use of the word ἀντείθησαμαι (Acts, ch. xxvii. v. 15.) which we translate to bear up into the wind, but which properly signifies to look or keep its eyes against it; to this purpose Plutarch fays of Demosthenes, that he could not ἀντείθησαμαι τω αὐχένιοι, look against or resist the power of money. Ward's Orat. vol. i. lect. 25. See also on this subject, Blake's Lect. vol. i. lect. 1.

Besides the four capital tropes above-mentioned, there are several inferior ones. When the trope is too bold, it is called an hyperbole; when continued, it is an allegory; when too obscure, an enigma; when it shocks us, or is too remote, a catachresis.

Add to these, other tropes: as the metalepsis, autonomania, and litotes, or extinction. See Metaphor, &c.

Some also refer the five kinds of scoffing, or derision, to the tropes; viz. the farcasm, diafyrax, charitienfim, alphem, myterifim, and mimefs; but this without sufficient reason.

See Sarcasm, Irony, &c.

TROPEA, in Geography, a town of Naples, in Calabria. Ultra, built on a rock near the sea-coast, the fee of a bishop, suffragan of Reggio. It contains five parish-churches, eleven convents, and about 4000 inhabitants, of whom the most wealthy and the handiersmen refide within the walls, whilst the husbandmen and labourers dwell in the outkirts, on the lands which they cultivate. Its situation is admirable, on the point of a lofty rock impending over the sea, and joined to the main land by an illusmus that is almost cut through at the gates, and thus leaves only a small passage to the town. A little to the N. lies a large island, on which some houses are turned to grace, and a small one, with a hermitage placed on its summit, in a most romantic position. The streets of Tropea are narrow, the houses high, and built of stone, with great solidity. Two gates give admittance, one to those who come up the hill from the bay, and the other to such as approach along the high plain, on which is a pleasant walk near two miles long. This level is half a mile broad between the sea and a chain of mountains so steep and rugged, that they apparently cut off all communication by land with the rest of Calabria. The whole flat, and fides of the hills, yield abundance of grapes, mulberries, olives, pulse, vegetables, and garden-fruit. Copious streams run from the mountains, and after watering the orchards, are collected into one body, and turn a great number of mills. In 1783, it suffered greatly from an earthquake; 37 miles N.N.E. of Reggio. N. lat. 35° 40'. E. long. 16° 13'.

TROPER, in our Old Writers, is used for a book of alternate turns and refpones in finging mafs. Lindcwoode calls it fiber fegmentarium.


Female on a separate tree, Cal. inferior, of one leaf, un- divided or two-lobed. Cor. either wanting, or of four con- cave, roundifh petals, closely embracing the germen. Pet. Germin ovate, of four cells; style short, thread-shaped; stigma two, awl-shaped, spreading. Peric. Berry nearly globular, corrugated, of one cell. Seeds from one to four, roundifh, with a brittle skin.


Obf. Nothing can be more obscure or uncertain than the history of this genus, nor do we feel, by any means, confident that the plants assembled under it agree in natural, or effential, characters. We must content ourselves with giving the best account of them in our power, after having so far new-modelled the generic character as to avoid palpable contradictions.

1. T. americana. Ramnoon Tree of Jamaica, or West Indian Trophis. Linn. Sp. Pl. 1451. Am. Acad. v. 5. 410. Wild. n. 1. Ait. n. 1. Swartz Obs. 372. T. folis oblongo-ovalis glabris alternis, floribus mafculinis pia- catis ad albas; Bowrme Lam. 357. f. 37. t. 1. Bucephalon racemofum; Linn. Sp. Pl. 1661. B. fructu racemofo rubro; Plum. Ic. t. 55. f. 17. —Thorns none. Leaves ovate, pointed, entire, smooth. Berry oval, furrowed, with a fimple point, and foliary feed.—Native of dry exposed situations in the West Indies, flowering in spring. Swarts. A tree, about twenty feet high. Leaves alternate, on shortifh furrowed falks; rounded at the bafe; about four inches long, with one rib and several transversef interbranching reticulated veins. Spikes axillary, falked, foliary, many-flowered, much shorter than the leaves, fome- times what downy, pale; the femina ones fhorter. Berries fpiked, felfie the size of large grapes, oval, with four furrows, and of a pleafant flavour. Swarts fay, the trunk and branches, when wounded, difcharge a very white, vifeid, milky juice. He, as well as Bowrme, affert the foliage and young shoots to afford an agreeable wholesome fodder for all sorts of cattle.

2. T. laurifolia. Laurel-leaved Trophis. Wild. n. 2. —Thorns none. Leaves elliptic-oblone, acute at each end, fmoother, entire. Berry with two horns, and two or four feds.—Native of Quito and New Granada. A tree, with thick, nearly round, branches. Leaves alternate, falked, three inches or more in length, tapering at each end, cori- ceous, smooth on both fides; thinning above; pale beneath. Clufiers axillary, the length of the footfolds. Fruit glo- bose, crowned with two dilatant, awl-shaped, inflexed horns, rather longer than the fruit itself. Seeds obovate; two only, according to Wildenow; four in a drawing lent by Mutis to Linnaeus, which the latter has marked Bucephalon, and which answers fo exactly to Wildenow's defcription of the plant gathered in Quito by Humboldt and Bonpland, that we can have no doubt of its being done from the fame fpecies. In contemplating Wildenow's specific characters of
of this and the foregoing, we cannot help thinking that he
took for the fruit of *T. americana*, the nut of *Trapa bicornis*,
(see *Trapa*,) which Burmann has subjoined to Plumer's
* t. 67.

Wildl. Sp. Pl. n. 3. * Ait. n. 2. — Thorns none. Leaves
ovate, unequally ferrated, very rough on both sides. Petals four in all the flowers.—Native of woods and
thickets at Tranquebar, flowering in April, from whence we
received specimens from the Rev. Dr. Rottler, in 1799.
*Branches* round, subdivided, leafy, without thorns or
prickles; slightly downy or hairy when young, and of a
rusty hue. *Leaves acute,* an inch long, on very short flacks;
strongly veined; ferrated beyond the middle; wedge-
shaped and entire at the base; rough on both sides like a
file, with minute callous warts: hence they serve to polish
fine cabinet-work. *Male flowers* five or eight, in axillary,
foliaceous, globose, filacted heads, sometimes accompanied by
a small rusty *bractea*, in the middle, or at the base, of the
*Stamen* four, thread-shaped, longer than the corolla, with
ovate, furrowed *anthers*. *Female flowers* two or three togeth-
er, axillary, on flacks like that of the male heads. *Calyx*
deply divided into two rounded, concave, permanent
segments, much shorter than the corolla. *Petals* four, ovate,
or nearly orbicular, concave,downy, closely invilging the
german, permanent. *Germen ovate*. *Style* very short. *Stigma*
long and flender. *Berry orange-coloured,* smooth, somewhat
comprised, with a small portion of pulp. *Sced* one or two,
globular, the size of a pea.

4. *T. spinosa.* Thorny Trophis. Wildl. n. 4. (Cudrana-
num javanum; Rumph. *Ambib.* v. 5. 22. t. 15. f. 2.)—
Thorns thorny. Leaves elliptical, entire, smooth. —*Native
of Java. *Branches* round, greyish-brown, armed with
axillary solitary thorns, which are incurred when young,
but become subfrequently inflated. *Leaves* filacted, larger
than the leaf, and very smooth on both sides; paler beneath.
*Female flowers* two or three together, lateral, filacted.
*Male ones* not observed. The wood is used to dye yellow,
and, with the addition of indigo, green. The berries are
described by Rumphius about the size of a strawberry, with
several feels, and of a yellownish colour. By his account
also, it should seem that this fruit is invested with a permanent
hardened *carolla*, evincing the generic affinity of the present
species to the last; though their belonging to *Trophic* must,
for the present, remain very doubtful.

**TROPHONIUS, Oracle of, in Ancient Mythology,** a famous oracle in Boetia, which was consulted with greater
ceremony than those of any deity, and subfitted long after
all those of Greece ceased. Trophonius, from whom the
oracle took its name, was the son of Erginus, king of the
Orchomenians, who, as well as his brother, were famous ar-
chitects, and built the temple of Apollo at Delphi. The
tomb of Trophonius had been altogether disregarded and
forgotten, when the Boetians, on occasion of a great
drought, consulting the oracle of Apollo, were directed to
have recourse to Trophonius at Lebadea. They purfued
the direftrion of the oracle, and obtained an answer, that
fuggested the means of removing their calamity. In con-
fquence of this event, they conferred to Trophonius the
wood in which he was interred; and in this wood erected a
temple to him, with his natne executed by Praxiteles.
The oracle of Trophonius was upon a mountain, within an
eclufure of white flones, upon which are elevated obelisks
of brafa. In this enclosure there was a cavern, in the form
of an oven, cut out of the mountain by human art and
labour. Within this was another small cavern, with a very
straight entrance, into which those who consulted the oracle
were to pafs, with a variety of ceremonies.

**TROPHY, TROPEUM,** among the *Ancients*, a pile or
heap of arms of a vanquished enemy, raised by the con-
queror in the most eminent part of the field of battle.
The word is formed from the Latin *tropheum*, or *tropaeum*,
which Vellius deduces from the Greek *trophe*, the flight of
an enemy.
The word is also used for an artificial representation of
such a pile in marble, stone, or other matter. Such were
the trophies of Marius and Sylla, in the Capitol, &c.
The ancient trophies confift of Greek and Roman arms;
and the modern ones of arms of the various nations now in use:
as in thothe infufated ones near Blenheim, in the Faux-
bourg S. Antoine, and in the castle of Verfaflles. Some
are done in baffe-relevo; as thefe of the Trajan column,
and the Attic of the court of the Louvre. The form of
these trophies cannot be better defcribed than in Virgil's
second *Aeneid*. Of thothe which Marius raised after the
Cimbic war, still remaining at Rome, Fabricius has given
the following account. They are two trunks of marble
hung round with spoils; one of them is covered with a feally
confeilt, with shields and other military ornaments. Just
before it is fet a youn man in the picture of a captive, with
his hands tied behind him; and all round were winged
images of victory. The other is fet out with the common
military garb; having a shield of an unequal round, and
two helments, one open and adorned with crefts, the other
clofe, without crefts. On the fame trophy is the shape of a
foilder's coat, with several other defigns, which, by reason
of the decay of the marble, are not difcovered without
great difficulty. Thesefe trophies now adorn the front
of the Capitol.

Trophies are likewise frequently exhibited on medals of
the emperors, stuck on occasion of victories; wherein,
befides arms and spoils, are frequently feen one or two
captives by the fides of the trophy.

Trophies, M. Vaillant observes, were, originally, nothing
but trunks of trees, which the victor planted on the most
eminent part of the conquered province, and hung them
with the spoils of the enemy, to perpetuate the memory of
the defeat.

**TROPHY, in Architecture,** an ornament which represents
the trunk of a tree, charged or encompassed all round
about with arms or military weapons, both offensive and
defensive.

**Trophy Money,** a duty paid annually by the house-
keepers, in the several counties of England, towards
providing harness, drums, colours, &c. for the militia.

**TOPRIANA,** in *Ancient Geography,* a town of Italy, in
Calabria.

**TROPICS, TROPIC,** in *Astronomy,* two inimmovable
circles of the sphere, drawn through the fudificial points,
parallel to the equator.

Such are the circles *M E* and *N L.* *Plate XVI. Astron-
omy,* fig. 149.

The tropics may be defined, two circles parallel to the
equator, at fuch distance from it, as is equal to the fun's
greatest recfs from the equator towards the poles; or to
the fun's greatest declinations; or the obfolute of the
ecliptic.

Of the two tropics, that drawn through the beginning of
Canor L, is called the *tropic of Cancer.* And that through
the beginning of Capricorn, the *tropic of Capricorn*.

They have their name from the Greek *topros,* turn or
*verfion,* as being the limits of the fun's way, or declaration
towards
TRO

TROSBURG, a town of Upper Bavaria; 13 miles E.

of Wallerburg.

TROSSACHS, a tract of rugged rocks or mountains

of stupendous height, situated about 10 miles W. from Cal-

lander, in the thirne of Perth, Scotland, and accessible by a

carriage-road. They exhibit an assemblage of wildness and

rued and grandeur, which fills the most exalted and sublime

conceptions. It seems as if a vast mountain had been torn

in pieces, and frizzled down by a convulsion of the earth,

and the huge fragments of rocks, woods, and hills, scattered.

in confusion for two miles on the sides of Loch Ca-

therine. A huge column of these rocks was some years ago

torn with thunder, and lies in very large blocks near the road.

Where there is any foil their sides are covered with aged

birch-trees. The fenible horizon is bounded by these trees

on the summit of every hill. On the north side, the road is

cut in some places through the solid rock, which rises up

wards of 200 feet perpendicular above the lake; at others

the road is at the foot of lofty cliffs, and trees are growing

where no earth is to be found.—Beauties of Scotland,


TROSSULI, among the Romans, a name given by

fome to the guards that attended the kings of Rome, other-

wise called celeres.

TROSSULUM, in Ancient Geography, a town of Italy,

in Etruria, in the vicinity of the country of the Volsci,

according to Pliny.

TROT, in the Manges, one of the natural paces of a

horse, performed with two legs in the air, and two on the

ground, at the same time, crofswise, and continuing fo

alternately, to raise the hind-leg of one fide, and the fore-

leg of the other fide at once; leaving the other hind and fore-

leg upon the ground till the former come down.

This action of his legs is the fame as when he walks,

except that in the trot his motions are more quick.

In this motion, the nearer the horse takes his limbs from

the ground, the opener, the evener, and the shorter his trot

will be. If he takes up his feet flovenly, it is a sign of

fumbling and lameness; if he tread narrow, or crofs, it

betokens interfering or falling; if he tread long, it fhews

over-reaching; if he fteps uneven, he indicates toil and

wearing.

Three qualities are essenfially neceffary to make the trot

ufeful. It ought to be extended, fupper, and even or

equal; these three qualities mutually depenf upon each

other; fo that you cannot pafs to the fupper trot, without

having fift worked upon the extended trot; and you can

never arrive at the even and equal trot, without having prac-

ticed the fupper. The extended trot is that in which the

horse trots out without retaining himfelf, being quite

ftraight, and going direcfly forwards; and this, confef-

quently, is the kind of trot with which you must begin.

The fupper trot is that in which the horse, at every motion

he makes, bends and plays all his joints, viz. thefe of his

shoulders, his knees and feet, which no colts, or raw horsies,

can execute, who have not had their limbs fupplired by ex-

ercife, and who always trot with a surprifing fiftinefs and

awkwardnefs, without the leaft spring or play in their joints.

The even or equal trot is that in which the horse makes all

his limbs and joints move fo equally and expreffly, and his

legs never cover more ground one than the other, nor at

one time more than another. To do this, the horse muft

necessarily unite and collecf all his flrength, and, if the ex-

pression may be allowed, diftribute it equally through all his

joints. To go from the extended trot to the fupper, you

must gently and by degrees hold in your horse; and when

by exercife he has attained fufficient cafe and fupperlets to

manage
manage his limbs readily, you must infenfibly hold him in
still more and more, and by degrees you will lead him to
the equal trot. All horses that are inclined to be ramingque
should be kept to the extended trot. A horse of a flaggish
and cold disposition, which has, nevertheless, strength and
bottom, should likewise be put to this trot: as he grows
animated, and begins to go free, keep him together by little
and little, in order to lead him infenfibly to the fupple trot;
but if, while you keep him together, you perceive that he
flacks his action and retains himself, give him the aids
brietly, and push him forward, keeping him, nevertheless,
gently in hand: by this means he will be taught to trot
freely and equally at the same time.

The only proof, or rather the most certain sign of your
horse's trotting well is, that when he is in his trot, and you
begin to push him a little, he offers to gallop. The principal
effects of a trot are to make a horse light and active,
and to give him a just appui.
The manner of trotting a colt which has never been backed
is as follows: put a plain snaffle in his mouth; fit a cavefon
to his nose, to the ring of which tie a longe of a reasonable
length. Let a groom hold this longe, who, having got at
some distance from the colt, must fland still in the middle of
the circle which the horse will make. Let another follow
him with a long whip or chambriere in his hand. The colt,
being alarmed, will be forced to go forward, and to turn
within the length of the cord; the grooms must hold it tight
in his hand; by this means he will draw in, or towards the
centre, the head of the colt, and his croup will of consequence
be without the circle. See Foal, and Backing of a Horse.

In working a young horse after this manner, do not press
or hurry him. Let him walk first, and afterwards put him
to the trot. If you neglect this method, his legs will be
embarrassed; he will lean on one side, and be more upon
one haunch than the other; the inner fore-foot will strike
against the outer one, and the pain which this will occasion
will drive him to seek some means of defence, and make
him disobedient. If he refuses to trot, the person who
holds the chambriere will animate him, by trotting him, or
skirling the ground with it. If he offers to gallop instead of
trotting, the groom must shake or jerk the cord that is
tied to the cavefon, and he will fall into his trot. Berenger's
Art of Horsemanship, vol. i. ch. 4.

TROTHY, in Geography, a river of England, in the
county of Monmouth, which runs into the Wye, near
Monmouth.

TROTZA, a river of Russia, which runs into the
Kama, 16 miles N. of Kofa, in the government of Viatka.

TROU, Lp., a settlement in the N. part of Hifpaniola.
N. lat. 19° 35'. W. long. 72°.

TROUBADOURS, a name given to the ancient poets
of Provence, who wrote, set, and sung their own verses.
See Provencal Poets.

Some will have the word borrowed from Trouver, to find,
by reason of their inventions, whence they are called Trou-
verets; though others take them to have been called Tromba-
dours; by reason they sung their poems to an instrument
called a tromp or trampe.

The poetry of the troubadours confisled in sonnets, pa-
torals, fongs, fyrvantes, or fatires, which were much to their
taff; and in tenfons, which were love-diputes.

Jean De Notre Dame, commonly called Nofradosorus, a
procureur in the parliament of Provence, wrote an amble
discourse of these poets. He makes their number seventy-
fix.

Pasquier tells us, he had an extract of an ancient book,
belonging to cardinal Bembo, entitled "Los Noma da-
ques qui sirent Tenfons & Syrventes," which made their
number ninety-six; among which was an emperor, viz.
Frederic I. and two kings, viz. Richard I. of England, and
a king of Arragon; with a dauphin, several counts, &c.
not that all these had composd entire works in Provencal;
some of them had not brought forth any thing beyond
epigrams.

Petrarch speaks, with applause, of several troubadours
in the fourth chapter of the Triumph of Love. The Ita-
lion poets are said to have borrowed their best pieces from
the troubadours. Pasquier expresses, that Dante and Petrarcl are,
indeed, the fountains of Italian poetry: but fountains which have their sources in the Provencal poetry.

Bouche, in his History of Provence, relates that, about
the middle of the twelfth century, the troubadours began
to be esteemed throughout Europe; and that their credit
and poetry were at the highest about the middle of the four-
tenth. So that they flourished in Europe about two hun-
dred and fifty years, viz. from 1120 or 1130 till the year
1382. He adds, that it was in Provence that Petrarch
learned the art of rhyming, which he afterwards praticed,
and taught in Italy.

Strolling musicians, under the appellation of Jongleurs,
(which fee,) abounded in France so early as the time of
Charlemagne, who forbids their admission into convents;
and in the first capulatory of Aix-la-Chapelle, this prince
speaks of them as perfons branded with infamy. They
continued, however, to amufe the great in private, as well as
the people in public, as a distinct body of men, till the trou-
badours introduced poetry into France, in the dislext of
that country. Their licentiousness was frequently re-
prefed, and their conduct regulated, by the police; and
during the reign of Philip Augustus, the troubadours and
minstreles, or jongleurs, were involved in the fame disgrace,
and for some time banished the kingdom; which fettuch
a stigma upon their order, as no efforts of genius, or aulte-
riety of manners, could entirely efface, though they were
afterwards recalled, and in some degree restored to publir
favour.

It is observed by a late elegant French writer, that though
the profcription of music and poetry, and the kind of
inquisition which Philip etablifhed against the jongleurs in
France, may have originated from the laudable intention of
repressing those disorders, which the abuse of their pro-
fession had occasioned; yet, if he had reflected that the
fate of letters was at that time in the hands of the trou-
badours, and that among every people approaching towards
civilization, the progress of virtue is generally propor-
tioned to the cultivation of arts and literature, he would
have inflicted a less ignominious punishment on the objects
of his displeasure; for such is the empire of prejudice, that
the anathema it pronounces against the abuse of a profession
remains in full force, even after the reformation of those who
exercife it. This author ventures to pronounce the jong-
leurs, or troubadours and minstreles, notwithstanding the con-
tempt with which they are named at present, to have been
the fathers of literature in France: they, fays he, banished
scholastic quarrels and ill-breeding, and polished the manners,
etablifhed the rules of politeuefs, enlivened the conversa-
tion, and purified the gallantry of its inhabitants. That
urbanity, continues he, which distinguishes us from other
people, was the fruit of their fongs; and if it is not from
them we derive our virtues, they at leaft taught us how to
render them amiable. Tableau Historique de Gens des
Lettres, par l'Abbe de Longchamps, tom. vi. cited by

Mr.
Mr. T. Warton (Hift. of English Poetry) is of opinion that there were two forts of French troubadours who have not been sufficiently distinguished. If we diligently examine their history, we shall find that the poetry of the first troubadours consisted, as we have already intimated, in fat, moral fables, allegories, and sentimental fonnets. So early as the year 1180, a tribunal called the "Court of Love," was instituted both in Provence and Picardy, at which questions in gallantry were decided. This institution furnished ample matter for the poets, who threw the claims and arguments of the different parties into verse, in a style that afterwards led the way to the spiritual conversations of Cyrus and Clelia. Fontenelle does not scruple to acknowledge, that gallantry was the parent of French poetry. But to sing romantic and chivalrous adventures was a very different talent, and required very different talents. The troubadours, therefore, who composed metrical romances form a different species, and ought always to be considered separately. And this latter class seems to have commenced at a later period, not till after the crusades had effected a great change in the manners and ideas of the western world.

In the mean time, as Warton conjectures, the art of the troubadours, commonly called the "Gay Science," was first communicated from France to the Italians, and afterwards to the Spaniards. If this be true, it is at the same time highly probable, that the Spaniards had their "juglares," or convivial bards, very early, because of long connection they were intimately acquainted with the fictions of the Arabians, and were naturally fond of chivalry, that the troubadours of Provence in great measure caught this turn of fable from Spain.

The communication, without mentioning any other obvious means of intercourse, in an affair of this nature, was easy through the ports of Toulon and Marseilles, by which the two nations carried on from early times a confiant commerce. Even the French critics themselves universally allow, that the Spaniards, having learned rhyme from the Arabians, through this very channel conveyed it to Provence. Taffo preferred "Amadis de Gaul," a romance originally written in Spain by Valco Lobeyra, before the year 1300, to the most celebrated pieces of the Provençal poets. The early universality of the French language very much contributed to facilitate the circulation of the poetry of the troubadours in other countries; and thus they contributed in a very considerable degree to the revival and diffusion of literature in Europe. See Josqueurs, Minstrel, Mystery, Provençal Poets, Romance.

TROUBLES, in Geography. See Coal.

TROVE, in Law. See Treasure-Trove.

TROVER, an action which a man hath against one that, having found any of his goods, refuseth to deliver them upon demand, but converts them to his own use; from which finding and converting, it is called an action of trover and conversion.

Actions and detinue are frequently turned into actions upon the cafe, sue trover and conversion.

The injury in this cafe lies in the conversion: and, therefore, the fact of the finding, or trover, is now totally immaterial; for the plaintiff needs only satisfied (as words of form) that he lost such goods, and that the defendant found them; and if he proves that the goods are his property, and that the defendant had them in his possession, it is sufficient. But a conversion must be fully proved; and then in this action the plaintiff shall recover damages equal to the value of the thing converted, but not the thing itself; which nothing will recover but an action of detinue or replevin.

See Restitution of Stolen Goods.

TROUGH, a hollow wooden vessel for kneading dough in, or to beat apples in for cider; also a piece of the trunk of a tree made hollow, to feed hogs in; or an open pipe or channel, made of boards, for the conveyance of water.

TROUGH of the Sea, is the hollow cavity made between two waves, or hollows, in a rolling sea.

When a ship lies down there, they say, the lies in the trough of the sea; in which case the rolls heavily, because the setting of the sea is always produced by the wind, and, consequently, the waves, and the trough between them, will be at right angles with the direction of the wind.

TROUPE HEAD, in Geography, a cape of Scotland, on the north coast of the county of Banff; 10 miles W. of Kinnaird's Point. N. lat. 57° 30'. W. long. 2° 11'.

TROUPESBURGH, a township of New York, in the United States, situated in the S.W. corner of Steuben county, 25 miles S.W. of Bath village, erected in 1808, from the S. part of Canileo and a small part of Addison, and extended to Allegany county in 1811; bounded N. by Canileo, E. by Addison, formerly Middletown, S. by the county of Pennsylvania, and W. by Allegany county. It is 18 miles long E. and W., and about 10 miles wide. The population in 1810 consisted of 292 persons and 36 ferreto-electors.

TROUSSEQUEXE, in the Monde. See Dock.

TROUSSEQUIN, a piece of wood, cut archwise, raised above the hinder bow of a great faddle, and serving to keep the hollers firm.

TROUT, Salmo fario of Linnaeus, in Ichthyology, a very valuable river-fish. See Salmo Fario.

The colours of the trout, and its spots, vary greatly in different waters, and in different localities; yet each may be reduced to one species. In Llyndivi, a lake in South Wales, are trouts called cooch y dail, mentioned by Pennant. See Salmo Fario.

In Lough Neagh, in Ireland, are also trouts called buddagh, some of which weigh thirty pounds; and others of a much superior size are taken in Hurl's water, a lake in Cumberland, supposed to be the same as the trouts of the lake of Geneva. In the river Eynion, not far from Machynlleth in North Wales, and in one of the Snowdon lakes, is found a variety of trout, naturally deformed, having a strange crookedhead near the tail.

The Hon. Mr. Daines Barrington supposed, that gillaroo, the name given to certain trouts in the Irish lakes, (see Salmo Fario,) may be either a corruption of Killala, the name of a town near which these trouts are caught, or formed of the Welsh cyll, q. d. Mormach, and the Irish ruadb, q. d. strangh; so that gillaroo may be the same as strong Mormach. From the observations both of Dr. Watson and Mr. J. Hunter, there is no reason for considering the Mormach of these trouts as gizzards, but as true morachs. That of the English trout is of the same kind with the Mormach of the gillaroo trout, but its coat is not so thick by two-thirds: and, therefore, the difference in the thickness of the Mormach, which may be occasioned by the nature of the waters, or adapted to the purposes of constituting a greater quantity of shell-fish than the Mormach of our trouts, does not warrant its being classed as a distinct species. The Mormach even of the gillaroo trout can poises fearlessly any power of grinding, as the whole cavity is lined with a fine villous coat, the internal surface of which appears everywhere to be digestive, and by no means fitted for mastication.
TROWBRIDGE, in Geography, a considerable market and manufacturing town in the hundred of Melksham and county of Wilts, England; is situated at the distance of 28 miles N.W. from Salisbury, and 98 miles W. by S. from London. Neither the etymology of its name, nor the period of its origin, can be ascertained with accuracy; but as it is not mentioned in Domesday book, we may conclude that it had no existence when that work was compiled. The earliest notice of it in history occurs in the reign of king Stephen, about the year 1150, when it appears that Trowbridge castle was occupied by the partisans of the empress Maud, and was besieged and taken by Stephen; but whether there was any town at that era does not appear. It is certain, however, that the lordship of Trowbridge formed part of the estates of Henry, duke of Lancaster, whose daughter Blanche married John of Gaunt, son of Edward III. When Lancaster was constituted a county-palatine, this manor, as part of the dukes property, was recognized in the charters as one of the honors attached to it; and here it is probable the court of chancery for the duchy was held, as the rents for the same are paid at Trowbridge to this day. As the entire duchy of Lancaster was vested in the king in the reign of Henry VII., this town, as belonging thereto, became a royal demeine. In the next reign it was granted to Edward, earl of Hereford, afterwards archbishop of Canterbury, at whose attainder it again reverted to the crown. It was restored to his son by queen Elizabeth, and continued the property of his collateral descendants till the reign of Charles I., when Francis Seymour was created baron Seymour of Trowbridge. It afterwards passed to the family of Manners, by the marriage of lady Frances Seymour with John, marquis of Granby; and from him descended to the present duke of Rutland, who sold it in 1840 to Thomas Timbrell, esq.

Like the generality of manufacturing towns, Trowbridge is very irregularly built. None of the streets seem to have been formed on any regular plan, but have been constructed according as private interest or convenience suggested. Hence, though there are several handsome houses in the town, yet they appear to disadvantage from the narrowness of the streets, and the intermixtute of old and mean buildings. The extent and importance of Trowbridge may be best determined by the parliamentary report of 1811, by which it appears to have then contained 1770 houses, and 7955 inhabitants. Of the latter, the greater part was engaged in the woollen manufacture, which was first established here in the early part of the reign of Henry VIII. Leland, who lived in that reign, gives the following account of this town. "From Bradforde to Thorough-bridge, about a two mile by good corne, pasture, and wood, I enter into the town by a stone bridge of three arches. The town stands on a rokky hille, and is very well buildyd of stone, and florished by drapery. Of later tymes, one James Terumber, a very rich clothier, buildyd a notable faire house in this town, and gave it to his deth, with other landes, to the finding of two Canuaries pretes yn Thorough-bridge chyrch. This Terumber made also a little almoxe-houshe by Thoroughe-bridge chyrch, and yit it be a six poore folkes, having a threpence by the week towards their finding. Horcon, a clothier of Bradforde, buildyd of late daies dyers fine houys in this town. Old Bayllie buildyd of late in this town; he was a rich clothier; Bayllie's fun now draped yn the town, and also a two miles out of it, at a place yn the way to Fazey castel. One Alexandre is now a great clothiar in the town." The cloths now principally manufactured here are superfine broad cloths and kerseywares: the weekly produce is estimated at ninety pieces of the former, and four hundred and ninety pieces of the latter. Trowbridge not being incorporated, its government is vested in the county magistrates, who hold the petty sessions for the Trowbridge division of the hundred alternately here and at Bradford. A court-leet and a court-baron are also annually held; in the former the copyholders, tything-men, and cornets of the market are appointed. The duty of the last-mentioned officers is to inspect the provisions brought to the market, and to see that the weights and measures accord with the proper standards. The market-day is Saturday; and a fair is held annually, at which considerable quantities of woollen goods, cattle, cheese, &c. are sold. In the market-place formerly stood a flour cross, which was taken down towards the end of the last century, on the occasion of its obstructing the communication of the High-street, and injuring its appearance. It is thus noticed by Leland: "There is a fair standing place for market-men to stand on, in the harte of the town, and this is made viij square, and a pillar in the midle, as there is one made in Malmesbury far fairer than this." The church of Trowbridge, though upwards of four hundred years old, is still characterised by the appellation of New Church, which implies that another must have previously existed here. By whom the new structure was raised is not distinctly recorded; but it appears probable, that a great part of the expense was incurred by James Terumber, the rich clothier mentioned by Leland, and the remainder by other benevolent individuals connected with the town. This opinion is founded on the context of a deed of feoffment by Terumber, dated January 14, 1483, and preferred in the seale-room; by which he directs that, out of his estates therein enumerated, ten marks should be paid Volunteer. 1864, Vol. xxxvi.
paid yearly to a priest to pray for his soul, and the souls of all other benefactors whose names should be comprised in a table hanging at the high altar. Considered in an architectural point of view, this church is deserving of notice. Leland styles it "lightum and fair," and tells us that one Molines, "a man well learned," was parson there in his time. It is a spacious edifice, and conflits of a nave, chancel, two side-aisles, with chapels attached, a north and south porch, and a large tower at the west end, surmounted by a taper spire. The nave and aisles are embattled, and are ornamented with crocketed pinnacles. Both porches are unusually lofty. The nave has a flat ceiled roof, highly decorated with flowers: it is separated from the side aisles by large arcades, supported by clustered columns with ornamented capitals. Some of the windows contain fragments of painted glass, particularly the east windows of the chapels, which are large, and display seven days or lights, separated by mullions. The font is lofty, and covered with a profusion of tracery and paneling, with sculptural representations on shields, emblematical of the crucifixion. The living is a rectory, in the gift of the duke of Rutland, he having reserved the advowson when he sold the manor: the present rector is the Rev. Mr. Crabbe. This church is the only place of religious worship on the establishment in the town; but there is a chapel of ease dependent upon it at Staverton, a hamlet within the parish. Like most manufacturing towns, Trowbridge abounds with Dissenters, and consequently contains several meeting-houses. The charitable institutions in Trowbridge are an almshouse, and a school for the education of thirty boys. The former was founded by a perfon of the name of Yerbury. The school-house stands in the church-yard, near the spot where the almshouse erected and endowed by Terum was placed, which has been recently taken down, and the funds appropriated to the use of the parish poor generally. Of the cafe no part is now standing; but its site is distinguishable by the remains of the moat and valla by which it was surrounded. It is more elevated than the town, and still retains, in the appellation Court-hill, a marked allusion to its ancient appropriation. As there are no data to determine by whom the cafe was erected, fo the period of its demolition is equally uncertain; but it must have occurred previous to the reign of Henry VIII., for Leland says of it, "The cafell floode on the fourth side of the toone. It is now eene down. There was in it a feven grete treues whereof peaces of two yet flande." The cafe was formerly approached from the town by a drawbridge over the moat, which has given occasion to a plausible conjecture that the name Trowbridge is a corruption of Drawbridge, near which the retainers of the cafe might probably have built their houses in the infancy of the town. This supposition derives some support from the fact, that some of the buildings adjoining Court-hill possess considerable marks of antiquity.

Among the distinguished natives of this town is George Kears, a writer of considerable eminence in the last century. He was defended from the earnest and opulent families of the Hungerfords and Seymours. He died June 27, 1797, aged 67.

About two miles to the south-east of Trowbridge is Rowd Ashton, the seat of Richard Godolphin Long, esq., one of the present representatives of the county of Wilts. The house is large and commodious, and has lately undergone considerable alterations and improvements, under the superintendence of Jeffrey Wyatt, esq. architect. The park is extensive and well wooded.—Beauties of England and Wales, vol. xv. Wiltshire, by John Britton, F.S.A. 1815.

TROWEL. See Brick-Layer.

TROWEL, Garden, a tool of the trowel kind, which is made of iron, in a hollow or scooped form, and is an useful implement in taking up numerous forts of small plants and bulbous roots, and replanting them in pots, fowing in patches, and various other similar light works: it should be from six to twelve inches long in the plate, and half as broad, and fixed on a short handle, to hold with one hand. From its being hollowed semicircularly, it is remarkably handy in removing many forts of small plants with a ball or lump of earth whole about their roots, so as not to feel their removal; lifting several forts of bulbous flower-roots, after the flowering is past in summer; planting bulbs in patches or little clumps about the borders, as also for digging small patches in the course of relating hardy annual flower-seeds on; likewise for filling mould into small pots in planting any fort of plants, flaring the surface of the mould in pots, and thref eating them when necessary: it is also highly useful for filling in earth about plants in hot-beds, and under frames, or any small compartments where a spade cannot be readily introduced.

They should be had of different sizes to suit different purposes.

TROWERT ISLAND, in Geography, a small island in the East Indian sea, near the south coast of Java. N. lat. " 72' 2'.

TROWERYN, a river of North Wales, which rises from a lake in Merionethshire, and runs into the Dee.

TROWLE, or TROLE, the Bowl, in English Antiquity, was a common phrase in drinking for paifing the vessel about, as appears from several of our old catches.

TROWSERS, among Sailors, a fort of loose breeches of canvas, worn by seamen, &c.

PROXIMON, in Botany, from τραχύς, catabile, a name chosen by Gartner, without much propriety, for this genus, which he very fully distinguished from Tragopogon: for that article, as well as Arnopogon, theretofore subjoined.


Gen. Ch. Common Calyx simple, ovate, of numerous lanceolate equal scales, in two rows. Cor. compound, imbricated, uniform. Florets various in number, all perfect, of one petal, ligulate, longer than the calyx, abruptly, with five teeth. Stam. Filaments, in each floret, five, capillary; others united into a long furrowed tube. Pijf. Germin, in each floret, oblong; ifyle thread-shaped, the length of the flamen; iligmas two, revolute. Peric. none, except the permanent, finally spreading, calyx. Seeds solitary, oblong, slender; down felty, capillary, roughish. Recap. naked, dotted.

Efl. Ch. Receptacle naked, dotted. Calyx of several leaves, in a double series. Seed-down simple, felty.

Obl. We do not find the calyx ever "imbricated with unequal scales," as the other says, it sometimes is. Such a character belongs to Sonchus. Neither is it perfectly simple; for, as far as we can discern in every known species, the scales, or leaves, stand in a double row, or circle, or the outer ones alternate with, and overlapping the inner, at their base. The simple seed-down essentially distinguishes this genus from Tragopogon, nor are the habits of the plants similar.


—Native
TRU

TRO

—Native of the banks of the Missouri. Biennial, with bright-yellow flowers. Pursh. Dr. Sims says perennial.

The original species was first by Clayton from Virginia, in 1794, to Gronovius, who communicated it to Linnaeus, inscribed "Dandelion with undivided leaves." Hence the latter took his specific name, the meaning of which he probably did not investigate, and he might perhaps call it Dandelion! The name is, at any rate, as bad as can possibly be, and we are happy in getting rid of it, by discovering the plant to be Mr. Pursh's first species of Traxion. Of this indeed neither this author, nor any one else, was aware; but though we have seen no specimen from Mr. Pursh, his specific character leaves no doubt in our mind, and Garret originally suggested that this Linnean Tragopogon was a Traxion. The leaves are radical, glaucous, very smooth, even, quite entire, four or five inches long, taper-pointed, with a solitary midrib, and some fine longitudinal veins. Flower-flats half as long in our specimen, but they probably are incomplete; Gronovius says twice as long; as they are fimbly, clothed in the upper part with prominent, tawny, glandular bristles, most crowded just under the flower, which is yellow, above an inch wide. Calyx smooth and glaucous, shorter than the corolla, its leaves folding over another as described in our generic character, but of equal length, not truly imbricated. The point of each is pale, a little dilated and membranous, or, as Pursh says, cupulata. Seed-down fimbly, and rough, not feathery. Gronovius rightly noted this circumstance. We can scarcely doubt the figure in Curtis's Magazine being our plant, though a larger specimen. The roughness of the flower-flats indeed is wanting, and the points of the calyx not fimbly.

1. T. lanatus. Woolly Traxion. (Tragopogon lanatus; Linn. Sp. Pl. 1. 111. Willd. Sp. Pl. v. 3. 1895. Leontodon lanatus; Linn. Am. Acad. v. 4. 287; excluding the reference to Rauwolf, 171, 217, which rather belongs to Scorzoner a tuberosa; see that article, n. 12.)—Leaves linear-lanceolate, undulated, clothed with fimbry hairs, as well as the radical flower-flats and calyx.—Native of Palestine, from whence, if we mistake not, the Linnean specimen was brought by Hasselquist. The root has a perennial aëritis, its crown bearing several tufts of upright, narrow, fheathing leaves, three or four inches long, considerably undulated, entire, loosely clothed, on both fides, with long, soft, fheagry, woolly, or rather fikly, hairs: the fapes of the outer ones pale, dilated, membranous and smooth. Flower-flats radical, folidary, from the centre of each tuft of leaves, and rather exceeding them in height, angular, covered with fmal hairs to those of the foliage. Flowers folidary, erect, yellow, nearly the size of the lift, but with fewer florets. Calyx hardly fo long as the corolla, very fheagry at the base, its leaves eight or ten, in two rows, lanceolate, smooth, bright, hairy, somewhat membranous at the edges. We can jufly perceive, in the flowers, that the seed-down is fimple and rough. Garret has indicated the true genius of this species, as well as of the foregoing. It appears nearly related to Scorzoner a tuberosa, a plant we have never seen; but whose pube feness is not deferialized as at all like that before us; and the recurved or revolute points of its calyx-fides, which moreover are unequal, and truly imbricated, in Pallas's figure, remove all ambiguity.

3. T. virginicum. Virginian Branching Traxion. Pursh n. 2. (Tragopogon virginicum; Linn. Sp. Pl. 1. 111. Hyoscyamus prenanthodes; Willd. Sp. Pl. v. 3. 1615. H. amplexicaulis; Michaux Boreal.-Amer. v. 2. 87.)—Smooth and glaucous. Stems erect, somewhat leaves, with several flowers. In meadows and moist shady woods, from Pennsylvania to Carolina. Root perennial. Herb about a foot high, with handsome yellow flowers. Pursh. The radical flowers are either obvate or fyrate, obtuse, wavy or toothed, tapering down into fheathing membranous foonfllats, together with which they measure about four inches: those of the stem few, obvate-oblong, fheagry, fheathing, the uppermost diminished to one or two bracteas, at the base of the long partial flower-flats, three or four of which together compose a fort of umbel. Flowers erect. Calyx of eight or ten glaucous smooth leaves, half an inch in length. Florets twice as long, not very numerous. Seeda few, smooth. Receptacle small, dotted, naked.—Specimens from Kalm and others from the late Dr. Muhlenberg differ widely in their foliage, that of the former being deeply fyrate, the latter fearely toothed; yet the plants are fo alike in other respects, that we cannot, without further information, diftinguish them as species.

4. T. cuspidatum. Pointed-scaled Traxion. Pursh 742. "Stalk radical, fingle-flowered; rather downy in the upper part. Leaves linear, downy and wavy in the margin. Calyx-scales imbricated, pointed, smooth."—Found by Mr. Bradbury, in Upper Louisiana. Perennial. Flowers large, yellow. Resembles T. glaucum. Pursh. By the specific character, we should be inclined to fuppute this might be the Leontodon Dandelion of Linneus, our first species of Traction, were not the fice of the flowers against it.

TROY, or ILIUM, in Ancient Geography, a cit of Troas, or Pherigmia Minor (which fee), rendered immortal by the inimitable poems of Homer and Virgil, was built by Tros, king of that country, who called it Troy from his own name, and Ilium from that of his son Ilius. It was feated on a rifing ground near mount Ida, and about five miles from the shore. Of this city, there fubfifted fearely any remains in the time of Strabo; and molt of the ancient as well as modern writers have confounded the old and new Ilium. The new city, built nearer the sea-coaf, was reduced to a village in the time of Alexander the Great, and was remarkable for nothing but a temple of Minerva, which that prince vifited, after having defeated Darius on the banks of the Granicus, and enriched with offerings, beftowing ample privileges on the place, and honouring it with the title of city. He likewise ordered the buildings to be repaired, and the whole city to be embellished by Lyfimachus, one of his generals, who surrounded it with a wall of forty furlongs in circumference. It was again reduced to the condition of an inconsiderable village, when the Romans firit entered Asia. As they pretended to be the genuine offspring of the ancient Trojans, no cost for pains were spared to reftore it to its ancient luftre, especially in the time of the Caesars. Augustus fent thither a colony, embellifhed the city with many flately buildings, and enriched it with ample privileges and exemptions. Bellonius tells us, that in his time two walls were yet standing, with the ruinous monuments of their turrets; and that he spent four hours in compaffing them, partly on horseback and partly on foot. He observed round the walls a great number of marble tombs of exquisite workmanship, with their covers entire. Two of these were still remaining when M. Spon vifited those places: who informs us, that they were in the fyle of the ancient Romans, and not unlike those that are to be feen at Arles; whence he concludes them to be the remains of that Troy which was rebuilt by the Romans. Bellonius likewise observed the ruins of three great towers, one on the top of a hill not far from the fhor, another about the middle, and the third at the bottom, with a great many large cihens to receive the rain-water. Spon observed on the south of the faven three columns lying among the briers, of which two were entire, and each of one fingle piece, being thirty
The town of Ilium, or Troy, was fortified by Laomedon, the successor of Ilus, with walls of such uncommon strength, that, in the language and belief of the times, they were deemed the work of the gods. It is said that he was assisted by Apollo and Neptune, or that he carried on and accomplished this great work with the treasures that were consecrated to them and lodged in their temples, which he plundered. It is certain, however, that the guilt of Laomedon was believed to entail calamity on his unhappy descendants. His son Priam, who attained old age in the undisturbed possession of a throne, surrounded by a numerous family, beloved by his subjects, and respected by his neighbours, was defined to feel the sharpest pangs of human misery, in a long protracted war and siege, the causes of which are thus detailed by one of the modern historians of ancient Greece.

Hereditary feuds subsisted between the ancestors of Priam and those of Agamemnon, when the latter quitted their establishments in Asia, to seek new settlements in Greece. The infults offered to Ganymede, a beautiful Trojan youth, by the brutal fury of Tantalus, was retorted on Menelaus, the fourth in descent from this infamous prince, by the rape and detention of his queen, the celebrated Helen. Paris, the ill-fated son of Priam, was the author of this new injury. But resentment for the wrongs of his house formed not the only motive which engaged the youthful levity of Paris to dishonour the sister-in-law of Agamemnon. Helen was the daughter of Tyndareus, king of Sparta. The illustrious honours of her family were adorned by the generous magnanimity of her brothers, Caflor and Polydeuces, whose exploits shone conspicuous in all the military expeditions of that gallant age. But the native bittre of Helen needed not the aid of foreign ornament. Even in the tender age of childhood, her opening charms had inflamed the heart of Theseus, the most admired and the most virtuous of the Greek chiefs. The fame of her beauty increased with her ripening age, and her person became an object of eager contention among those who, by birth or merit, were entitled to aspire at the invaluable prize. Tyndareus, solicitous to prevent the violence of a second lover (for, agreeably to the manners of his age, Theseus had carried her off by force), bound the various suitors by oath to defend the honour of his daughter, and to secure the possession of her charms to the man who should be honoured with her choice. The princely men and insatiable men of Menelaus, were preferred to the more solid qualities of his numerous competitors. Having married the heiress of Tyndareus, he succeeded, in her right, to the Spartan throne. The graceful pair not long enjoyed the honours of royalty, and the favours of conjugal union, when their happiness was interrupted by the arrival of the son of Priam, the handsome man of his age, and singularly adorned with the frivolous accomplishments that often captivate the weaknesses of a female mind. Though a soldier of no great renown, Paris had strongly imbued the romantic spirit of gallantry, which prevailed in the heroic ages, and was distinguished by an ardent passion for beauty, which, notwithstanding the general softness of his unwarlike character, prompted him to brave every danger in pursuit of his favourite object. Animated by the hope of beholding the inimitable model of what he most adored, he seized the opportunity afforded him by a voyage of Menelaus into Crete, visited the dominions of his hereditary enemies, and solicited the rites of hospitality at the Spartan court.

His person, his accomplishments, his address, and still more the voluntary hardships which he had endured for her sake, seduced the inconstant affections of the Grecian queen. Enamoured of the elegant stranger, she abandoned her country and her husband, and having transported her most valuable treasure within the Trojan walls, defied the remonstrance of Greece, and the vengeance of heaven.

It was now the time for Menelaus to crave the ripulated assistance of his ancient rivals. His demand was enforced by the authority of Agamemnon. At the summons of the two brothers, the confederates assembled at Aegium, the capital of Achaia; confirmed the obligation of their former promise; felt the proportion of troops to be raised by each prince; determined the time and place of their departure; and named Agamemnon, the most powerful among them, to the chief command, in an expedition which so deeply concerned the honour of his family.

Aulis, a fea-port of Boeotia, was appointed for the place of rendezvous and disembarkation. Before the whole army fanned from thence, Ulysses, king of Ithaca, and, what may seem extraordinary, the injured Menelaus, undertook a solemn embassy to Troy, in order to demand reparation and reparation; but returned highly disgruntled with their reception and treatment. Some members of the Trojan council had the barbarity to propose putting them to death. Their just indignation incited the warlike ardour of their associates. But contrary winds long retarded their departure. The Trojans had time to strengthen their ramparts, to collect arms and provisions, and to summon the assistance of their distant allies. The martial spirit of the age, together with a sense of common danger, brought many powerful auxiliaries; Priam's son was defended by the hardy mountaineers, who covered the back of his kingdom, by the Carians, Lycians, and other nations of Asia Minor, extending from the mouth of the river Halys to the southern extremity of Cilicia; and by the Pelasgi, Thracians, and Peonians, fierce barbarians who inhabited the European side of the Hellepont and Propontis. Confiding, however, rather in their domestic strength, than in foreign assistance, the Trojans determined to defend their native shores against hostile invasion. The debarkation of the Greeks was purchased by much blood. Having effected a defcent, they encamped on the Trojan plain, but left the only opportunity which they enjoyed, during many years, of crushing at once the power of their enemies; who immediately flung themselves up within their impenetrable walls, leaving the city open only on the side of mount Ida, from which they received corn, cattle, and other necessary supplies.

Agamemnon, as there was reason to expect from the manners of his age, had been more inglorious in collecting a great army, than provident in contriving means by which it might keep the field. The provisions, transported from Greece, were speedily consumed, while the operations of the siege...
TROY.

The siege promised little hopes of success, the Greeks being unacquainted with any military engines fitted to make an impression on the Trojan walls. With such a numerous army, they might have converted the siege into a blockade; but scarcity of supplies compelled the greater part of them to quit the camp. The resource of ravaging the adjacent country soon exhausted itself. Many betook themselves to cultivating the rich vales of the Chersonesus, whose industrious inhabitants had recently been expelled, or destroyed, by the fierce incursions of the barbarous Thracians. Others had recourse to piracy, feized the neighbouring seas, ravaged the unprotected coasts of the Hellespont and Ægean, and plundered or demolished such unfortified places as acknowledged the dominion, or affIlled the arms of Troy. These ravages excited the rage of the Æolians, and rendered them more hearty in the cause of their confederates. In this manner nine summers and winters elapsed, without affording the nearer prospect of a decision to the contest; but, in the tenth year of the war, the seeming misfortunes of the Greeks precipitated the downfall of the proud city of Priam. A dreadful pestilence invaded the camp of the besiegers, and long continued to rage with unabating fury. This calamity was followed by the well-known quarrel between Agenammon and Achilles, which deprived the Greek army of its principal strength and ornament. The Trojans derived new spirits from the misfortunes of their enemies; they ventured to abandon the protection of their walls, boldly affIned the Greek camp, and rilked several engagements, in most of which they were victorious. In the left of these, the beloved friend of Achilles was slain by the arm of Hector, the bravest and most generous of the Trojan race. This event, which was infinitely more dreadful than death to the affectionate ardour of the Greek chief, stirred his hitherto inexcusable renfentment against the proud tyranny of Agamemnon. His return to the camp restored the declining fortune of the Greeks; and the indignant fury of his rage was quenched in the detested blood of Hector, whose patriotic value had long been the firmst bulwark of his father's kingdom. The destruction of Troy soon followed the death of her darling hero. The city, whether taken by storm or by surprize, was set on fire in the night; most of the citizens perished by the sword, or were dragged into captivity; and only a miserable remnant escaped through the confused horror of raging flames and expiring kinmen.

The burning of Troy happened eleven hundred and eighty-four years before the Christian era. Neither the city nor territory ever allumed, in any succeeding age, the dignity of independent government. The sea-coast was planted, eighty years after the Trojan war, by new colonies from Greece; and the inland parts submitted to the growing power of the Lydians, whose arms overspread and conquered all the finest provinces of Lesser Asia.

The Greeks had recovered possession of the admired beauty of Helen; they had taken complete vengeance on the family and nation of her unhappy seducer; but the misfortunes which were the natural consequence of the Trojan expedition, left them little reason to boast of their victory. Of five Boeotian commanders, only one remained, and the siege had been proportionally fatal to the leaders of other tribes, as well as to their warlike followers. Thoïs who lived to divide the rich spoils of Troy, were impatient to fell with their newly-acquired treasures, notwithstanding the threatening appearance of the fieses. Many of them perished by shipwreck; the rest were long tossed on unknown seas; and when they expected to find in their native country the end of their calamities, they were exposed to suffer greater calamities there, than any which they had yet endured. The thrones of several of the absent princes had been usurped by violence and ambition; the lands of various communities had been occupied by the invasion of hostile tribes; even the least unfortunate of those adventurers found their domains unceIlated, or their territories laid waste; their families torn by difcord, or their cities shaken by sedition. And thus the most celebrated enterprife of combined Greece tended to plunge that delightful and once happy country into barbarism and misery.

Gillies's Hist. of Anc. Greece, vol. i.

All the Roman writers assure us that Æneas settled in Italy, and there founded the kingdom of Alba. From him the Caefars afforded to derive their pedigree. Livy alone seems to betray some doubt of this particular, inquiring, with a great deal of deference, that he has not sufficient grounds either to admit or reject the common opinion. But, notwithstanding the unanimous content of the Latins, there are not wanting arguments of great weight, which the learned Bochart has carefully collected, to prove the arrival of Æneas in Italy to be a mere fable.

Dr. Gillies having carefully examined the evidence given by Bochart (Epift. num Æneas unquam fuit in Italia), and by Mr. Wood (Essay on the original Genius of Homer), to prove that the descendants of Æneas reigned in Troy, observes, that notwithstanding the learned ingenuity of a profound, and the plausible criticism of an elegant scholar, the matter seems still too doubtful to warrant contradicting the popular opinion. Some few writers, both ancient and modern, have regarded Homer's account of the siege of Troy as a mere fiction, or the refult of a poetical imagination. Thus Dion Chryfollom (Ora?, xi.) attempts to prove that the siege and deftruction of Troy by the Greeks is altogether fabulous, and deftirute of any foundation in truth. But his performance has been generally regarded as a mere jeu d'esprit, since the author elsewhere (sir. Æneas, p. 225.) disproves what he endeavours to establish in the place before cited. Indeed the siege and capture of Troy are transactions so well attested, and form so remarkable an epocha in hislory, that they cannot be juftly questioned. Nevertheless the learned Bryant, not long ago, published two pamphlets with a view of refuting the generally received opinions respecting the existence of Ancient Troy, and the authenticity of the leading facts in the history of the Trojan war: but his arguments and conclusions have been examined, and, in our opinion, satisfactorily refuted, by Mr. G. Wakefield, in his "Letters to Jacob Bryant, Esq. concerning his Differtation on the War of Troy," and J. B. S. Morritt, Esq. in his "Vindication of Homer, and of the ancient Poets and Historians, who have recorded the Siege and Fall of Troy," as well as the testimony of Le Chevalier, and other modern travellers. See Olivier's Travels in the Ottoman Empire, &c.

TROY, Epoch of the Destruction of. See Epocha.

TROY, Francis de, in Biography, was born at Toulouse in 1645. He was the fon of Nicholas de Troy, a painter of little celebrity, from whom he received the first rudiments of design; but he was sent to Paris when young, where he studied historical painting under Nicholas Loir, and became a member of the Academy in 1674. He afterwards attached himself to the more lucrative profession of portrait painting, and became celebrated in that line. He was sent by Louis XIV. to the court of Munich, to paint the portrait of Maria-Christiana of Bavaria, afterwards dauphine of France. His own portrait is placed in the gallery of Florence. Among the historical pictures which he produced, one of the most renowned was painted for the church of St. Genevieve, in which the magnificence of Paris were represented invoking that saint. He died at Paris in 1730.
Troy, John, was the son of Francis, and born at Paris in 1676. After receiving the instruction of his father in the art of painting until he had made considerable progress, he travelled to Italy, where he studied some years, and soon after his return to Paris he was made a member of the Academy. He was employed by Louis XIV., for whom he painted a series of cartoons for tapestry, representing the history of Either, and several large allegorical subjects for the Hotel de Ville. The king appointed him director of the French Academy at Rome, where he reduced great part of his life; and he acquired so much reputation that his business filled his time in a most respectable manner. His majesty conferred upon him the order of St. Michael, and honoured him with other marks of his particular esteem. He was not less distinguished as a painter of portraits than of history. He died in 1752, aged 76.

Troy, in Geography, a post-township, the capital of Renfrew county, on the E. bank of the Hudson, six miles above Albany; bounded N. by Lansburgh, E. by Brunswick, S. by Greenwich, W. by the Hudson, or the county of Albany. The flourishing village of Troy is in this township, from which it has its name. Along the river are extensive flats, and the river-hill is moity arable. In the S. where the hills approach nearest the river, are some fine streams for mills, and falls of a great height. There are few places on the Hudson, of the fame area, that combine more advantages for a populous town. The soil is good, and here are excellent facilities for water-works; and near the head of flow-navigation on one of the belt rivers in America. In 1810, the whole population was 3895, including 89 slaves, and the number of electors was 334.

The village of Troy is agreeably situated on a gravelly plain, on the E. bank of the Hudson, six miles N. of Albany; it is regularly laid out in streets and squares, and contains 660 houses and stores, five places of worship, two banks, the court-house and prison for the county, a market-house, and many other buildings. Many of the houses, though built of wood, are large and elegant, and those of brick form a considerable number of the whole. The streets are wide, with sufficient side-walks, but unpaved. River-street, the principal avenue, extends about a mile along the river, and receives all the other streets that run N. and S. as well as E. and W. in right lines, forming the rear space into perfect squares, and the straight streets are sixty feet wide. The manufactures are considerable, and trade is extensive, as it employs a great number of floors, &c. on the Hudson. In wealth and trade Troy takes the third rank in the state, among its populous towns. The places of worship belong to the Presbyterians, Baptists, Episcopalians, Quakers, and Methodists; and here are several school-houses, as well as two banks, with an aggregate capital of 870,000 dollars. The River-hill, that rises in the rear of Troy, is very appropriately called mount Ida, and its fine fides and summits present elegant circuits for building that command an extensive view of Troy and the surrounding country. Troy was incorporated in 1801, and is governed by a president and several trustees.

Troy, a town of Massachusetts, in the county of Bristol, containing 1296 inhabitants. — Also, a town of Vermont, in the county of Orleans, containing 231 inhabitants. — Also, a town of the county of Athens, in the district of Ohio, containing 578 inhabitants. — Also, a township of Trumbull county, in the district of Ohio, containing 239 inhabitants.

Troy, White, White of Orleans, or Spanisb White, is a name given to a preparation of chalk, which is finely powdered, formed into cakes, and used in the arts. This chalk is found in great abundance at a village called Villedoup, about four leagues from Troyes in France. It is dug out of the earth in small lumps, and after having been exposed to the air, is bruised and reduced into a gross powder, which is padded through a sieve: when it is perfectly dry, it is diluted with soft water, and formed into a kind of pâte, which, being well tempered, is ground very fine in a mill, and used by painters, gliders, &c.: the qualities that particularly recommend this chalk are that it is being very white, friable, and free from all mixture of adventitious earth and stone.

The white of Orleans is prepared at Caverneau, a small village about nine leagues from Orleans, and reckoned inferior in value to the former. Mem. Acad. Sc. 1754. Ephemeris. Troyennes, an. 1759.

The artificial Troy white, called also Spanish white, is chalk neutralized by the addition of water in which alum is dissolved, and afterwards washed over. It is used by some in water-colours as a white, and may be thus prepared: Take a pound of chalk, and soak it well in water; then wash over all the fine part; and having poured off the first water, add another quantity, in which two ounces of alum are dissolved. Let them stand for a day or two, stirring the chalk once in six or eight hours; wash the chalk again over, till it be rendered perfectly fine, and pour off as much of the water as can be separated from the chalk by that means, taking off the remainder of the dissolved alum, by several renewed quantities of fresh water. After the last water is poured off, put the chalk into a callender-fibre, with a linen cloth over the paper; and, when the moisture has been sufficiently drained off from it, lay it out in lumps to dry on a proper board. Hand. to the Arts, vol. i. p. 177.

Troy Weight, anciently called Trone Weight. See Weight.

Troy Pound. See Weight.

Troyes, in Geography, a city of France, and capital of the department of the Aube, on the Seine; before the revolution the capital of Champagne, and the fee of a bishop. It contained fourteen churches, four abbeys, ten convents, a college, and an hospital. The inhabitants carry on a considerable trade in linen, flax, hemp, cotton, fustians, &c. The environs produce grain, legumes, and fruit in abundance; 18 polls N.W. of Dijon. N. lat. 48° 18'. E. long. 4° 10'.

Trschitz, a town of Moravia, in the circle of Olmutz; 10 miles S.S.E. of Olmutz.

Trsebon. See Wittgenau.

Trsemeschino, a town of the duchy of Warsaw; 10 miles S.E. of Gniezn.

Truce, Trusca, a fufpension of arms; or a cessation of hostilities between two parties at war, which does not terminate it, but merely suspends its operations.

The word, according to Menage, &c. comes from the Latin trucis, which signifies the same; and which Caenere derives further, from the German truc, or trus, which signifies truth.

A truce is either particular or universal: by the former, hostilities cease in particular places, as between a town and a besieging army; by the latter, they are to cease generally, and in all places between the belligerent powers. Particular truces may also admit of a distinction with regard to the acts of hostility, or to the persons; that is, it may be agreed to abate for a time certain hostilities, or two armies may conclude a truce, or suspension of arms, without respect to place. A general truce made for many years, differs from a peace in little else than in leaving the original question of the war undecided, as they found it.

Accordingly
Accordingly, truces are frequently concluded between princes, in order to come to a peace; and truces of many years' date in lieu of treaties of peace between princes, whose differences cannot be finally adjudged.

All truces and suspension of arms are concluded by the authority of the sovereign, who consents to some of them in his own immediate person, and to others through the ministry of his generals and officers. The truce binds the contracting parties from the moment of its being concluded; but cannot have the force of a law with regard to subjects on both sides, till it has been solemnly proclaimed. A ship being on the open seas at the time of publishing the truce, meets with a ship of the enemy, and sinks her; as in this case there is no guilt, she is not liable to pay any damage. If she has made a capture of the vessel, all the obligation she lies under is to restore it, as not retainable by the truce.

If one of the contracting parties, or any person by his order, or with his consent only, commit any act contrary to the truce, it is an injury to the other contracting party; the truce is dissolved, and the party offended is entitled to take up arms, not only to repel the operations of the war, but also for revenging the recent injury offered it.

Sometimes a penalty on the infractor of the truce is reciprocally stipulated, and then the truce is not immediately broken on the first infractor: if the party offending submits to the penalty, and repairs the damage, the truce subsists, and the party offended has nothing farther to claim. If an alternative has been settled, that in case of an infractor the delinquent shall suffer a certain penalty, or the truce be broken, the party injured may choose whether he will demand the penalty, or make use of his right to take up arms again.

The time of the truce should be well specified in order to prevent any doubt or dispute from the moment of its beginning to its period. If no term has been specified for the commencement of the truce, as it binds the contracting parties immediately upon its conclusion, it concerns them to cause it to be published immediately, in order to the observance of it; for it becomes binding on the subjects only from the time of its proper publication; and it begins to take effect only from the moment of the first publication, unless the agreement be other wise. The rules that concern a truce during its continuance are such as follow: Each party may do, within its own territories, what it has a right of doing in time of full peace: advantage is not to be taken of doing what could not be done during the hostilities, e. g. continuing the works of a siege, or repairing breaches, and introducing succours. Nothing is to be undertaken in confined places while the truce continues, but every thing is to be left as it was; e. g. if the enemy does not relinquish a port, town, or village, the truce forbids an invasion of it: subjects inclined to revolt against their prince are not to be entertained, much less invited to treason: persons or effects of enemies are not to be seized during the truce. Intercourse may be allowed during a truce. At the expiration of the truce the war is renewed without any fresh declaration. See Vattel's Law of Nations, book iii. ch. 16.

**Truce of God**. Trêve Drei, is a phrase famous in the histories of the eleventh century, when the disorders and licences of private wars between particular lords and families obliged the bishops of France to forbid such violences within certain times, under canonical pain.

Those intervals they called trêve Drei, trèce de Dieu, q. d. truce of God, a phrase frequent in the councils since that time. The first regulation of this kind, was in a synod held in the diocese of Elno in Rouffillon, anno 1072, where it was enacted, that, throughout that country, no person should attack his enemy from the hour of none on Saturday, to that of prime on Monday, that Sunday might have its proper honour; that nobody should attack, at any time, a religious priest walking unarmed, nor any person going to church, or returning from the fame, or walking with women; that nobody should attack a church, or any house within thirty paces around it. The whole under penalty of excommunication, which, at the end of three months, was converted into an anathema.

These quarrels had prevailed even in the time of Charlemagne, and much more after his death; so that the church found it necessary to interpose. The most early of these interpositions, now extant, is towards the end of the tenth century.

In 990, several bishops assembled in the south of France, and published regulations to restrain the violence and frequency of private wars, ordaining that the transgressor should be excluded from all Christian privileges during his life, and be denied Christian burial after his death. To the same purpose a council was held at Limoges, A.D. 994; and several other councils lifted their decrees for restraining the evil. But the authority of councils was insufficient; and, therefore, a bishop of Aquitaine, A.D. 1052, pretended that an angel from heaven had appeared to him with a writing, enjoining men to cease from their hostilities, and be reconciled to one another. Accordingly, a general cessation took place, and lasted for seven years; and a resolution was formed, that no man should attack or molest his adversaries from the evening of Thursday in each week, to the morning of Monday in the week ensuing, the intervening days being peculiarly holy; our Saviour's passion having happened on one of them, and his resurrection on another. This sudden change was considered as miraculous, and the refpite from hostilities subsequent to it was called the truce of God.

This from being a regulation in one kingdom became a general law in Christendom, and was confirmed by the authority of the pope, and the violators were subjected to the penalty of excommunication. The council of Tours in Rouffillon, A.D. 1041, issued an act, containing all the stipulations required by the truce of God. The nobles, however, disregarding the truce, pursued their quarrels without interruption. Toward the end of the twelfth century, a new revelation was pretended, and, in consequence of it, an association formed under the title of the "Brotherhood of God." At length Philip Augustus, or St. Louis, published an ordinance, A.D. 1243, prohibiting any person to commence hostilities until forty days after the offence which caused the quarrel, and the transgressor was to be tried and punished by the judge as a traitor. This was called the royal truce, and the regulation was productive of good effects. This was farther enforced by an ordinance of Philip the Fair, A.D. 1296. See Robertson's Hill of Charles V. vol. i. p. 335, &c. 8vo.

**Truce, Reckoning of.** See Passport.

**Truce, Conservator of.** See CONSERVATOR.

**TRUCHMAN, DIAGRAMON, or Drogon, in the countries of the Levant, an interpreter.**

**TRUCHMENIANS, or ancient Turkomans, called by the Russians Terekmenian Tartars, are those tribes who parent flock still nomadizes on the eastern coasts of the Caffian, where their territory extends as far as the lake Ariel and Peria. The Truchmenians, in particular, profess on the western side of the Caffian part of the Caffian...**
mountains which stretch from that sea as far as the province of Kakhetty of the Georgian plate. The generality of the districts have their own common princes; others form particular states, and some are under foreign sovereignty. In the former half of the 18th century a part of these hordes fell under the yoke of the Torgotan prince Ayuka, and on that occasion many Tuchmenian families withdrew to the Tartars of Orenburg, Ufa, and Astrakhan. In the year 1770, the remainder of these people, who had not been before under the dominion of the Kalmucks, set themselves at liberty, and at present nomadise as free subjects of the Russian empire about the mouth of the Kuma. Their number is continually increasing by such as escape from the Kirghis, and are found through fling among the Tartars of Orenburg and Ufa, yet to no small amount. See Turken.

TRUCHTERSHEIM, in Geography, a town of France, in the department of the Lower Rhine; 7 miles W. of Strasburg.

TRUCKING, in Commerce. See PERMUTATION, EXCHANGE, and COMMERCE.

TRUCKS, in a Ship, pieces of wood of various shapes, and used for different purposes. Carriage-trucks are cylinders, the breadth or thickness of which is always equal to that of the side-pieces; but the height of the side-pieces and diameter of the trucks must always depend upon the height of the gun-ports above the deck. Flag-strap-trucks are circular flat pieces of elm, with a small sheave at each end. They are fixed by a mortise upon the upper end of flag-strafts, and are used to receive the haliards. Parring-trucks are round balls of elm, or other wood, and have a hole through the middle, in which a rope is reeled, to form the parrels. Steering-trucks are similar to parrell-trucks, but have a score round the middle, to admit a feizing. They are used to lead ropes through. Straddle-trucks are short cylindrical pieces of elm, &c.; they have a hole through the middle, lengthways, a groove down the side the size of the strards, and a score round the middle to admit a feizing. They are seized to the strards to lead ropes through, that they may be more readily found. Lane-trucks are small ornamental pieces of wood like an acorn, &c. and are fixed on the uppermost point of the spindle, above the vane on the mast-head. Their use is to prevent the vane's unhipping.

Trucks, among Gunners, round pieces of wood, in form of wheels, fixed on the axle-trees of carriages, to move the ordnance at sea, and sometimes also at land. See Carriage.

Trucks are also a very large kind of wheel-bawrors, with high wheels moving on planks, used for conveying stuff down a flight declivity in digging canals.

Truck-Bawrows are used in rope-making of different sizes; they have three wheels, and are used to take haws of yarn from the yarn-house, and remnants of yarn, coils of rope, &c. from the ground to the rope-house.

TRUDEAU, in Geography, a town of Pomerania; 9 miles S.E. of Dantizick.

TRUE, something agreeable to the reality of things, or to truth.

In this sense we say, the true God, the true religion, true gold, &c. in opposition to false or pretended ones.

TRUE, in Botany. See HERB PARIS.

TRUE Love of Canada. See HERB PARIS of Canada.

TRUE Place of a Planet, or Star, in Astronomy. See PLACE.

TRUE Altitude, Anomaly, Abnormal, Iteration, Proposition, Discovery, Rite, and Nature. See the several articles.

TRUENTUS, TROENTO or TROONTE, in Ancient Geography, a river of Italy, in the southern part of Picenum, which passed by Aci-lium. At its mouth was a fortified place called "Caletrum Truentinum."

Truffles, formed from truffles, or truffles, of the Latin tuber, or tuberculum, tubera terra, in Natural History, a sort of subterranean vegetable production, or a kind of mushroom, the characters of which are these: they are of a fungous fleety structure, and are of a roundish figure, growing sometimes single, sometimes many together, and always remaining under ground. See Tuber.

Bradley calls them under-ground edible mushroom, or Spanish truffles, and under-ground deer's-balls, or mushrooms.

The ancients, it is evident from their writings, were not acquainted with the fort of truffles which we have in use at present; they describe theirs to have been of a reddish colour, and smooth on the furfurales, as we know not kind very well; it is common in Italy, and is called the wild truffle, and disrevered. They had indeed the white African truffle, sometimes brought to them, and held it in great esteem for its flavour. The Romans called it the Lybian tuber, and the Greeks the Cyrenian myrs.

Avicenna recommends those truffles as the best, which were of a whitish colour within; and this not being a clear white, he expresses himself by a word which signifies sand-coloured, alluding to dusky-white sand, in common use at that time.

It is certain that the first truffles were called by some authors by this epithet arenofa, with a very different meaning, only expressing that they were produced in sandy countries: the European truffles both then were, and now are, mostly produced in dry ground on the sides of falls; but the Lybian were produced only in the burning sands of that country, and these were therefore called sand-truffles.

Serrapio tells us, that the root of all truffles were those produced in sand; and Martial alludes to these, where he describes the fine truffles as breasting the surface of the earth into cracks, and by that means directing people where to search for them. To which purpose Leo Africanus says of the Lybian truffle, that the places where they are may be known by the earth's being raised into hillocks, and breaking into numerous cracks.

The truffle is most abundantly produced in dry fields of a reddish loamy earth, not too poor, according to Pliny, chiefly after rains and thunders in autumn; and they are found to flourish near the roots of elms, the ilex, and some other trees. They do not well bear the severity of hard winters, but are usally scarce all the season after such. The smallest are found about the bigness of a pea, reddish without and whitish within, and they grow from this size sometimes to a pound weight, but such are not common; what are taken up in the spring are distinguihated by their white colour and infirmitity to the taste, and are commonly called white truffles; those taken up in autumn are of a variegated colour within, and are called marble truffles; the inner substance having swelled extremely and changed colour, and the white part now remaining only in form of a number of pipes or tubes, which seem in many places to run to the extremity, and terminate in the chaps and wrinkles of the back. The greyish substance, which is wrapped up among these tubules, when examined by the microscope, appears to be a transparent parenchyma, composed of little bladders or hollow vesicles, in the midst of which may be seen small round bodies, which are unquestionably the seeds of the truffle.

What
What confirms the opinion of their coming from seed is, that there have been truffles discovered in England, and this, at first, only in Northamptonshire, and even only in one place of it, viz. Rufton, a place rock'd with trees formerly brought from Languedoc; and it is only since then, that any truffles have been there observed; whence it is concluded, that the seed of these truffles was brought from France among the roots of the trees brought thence.

These English truffles were first discovered by Dr. Hatton. Dr. Tancred Robinson affirms us, they are the true French truffles, the Italian tartufa, or tartufello, and the Spanih turms de tierra, being not before noted by Mr. Ray as ever known on English ground: indeed he adds, that he has seen them thrive as large at Florence, Rome, &c.

Those observed in England are all included in a studded bark or coat, and the inner substance is of the confistence of the fleshy part of a young chefнут, of a pale-colour, a rank or hircine smell, and unfaavourable.

When the truffles are arrived at such a degree of maturity as to yield feeds, which is generally in August, they are of a fine high flavour and agreeable smell; and the heat and rains at this season greatly promoting their growth, has been the occasion of the old error, that thunder produced them: after this they continue good till the middle of winter, and sometimes even till March: but those gathered from this time till the end of July are small, and only white, never marbled, nor of their high taste.

If the truffles are not taken up when fully ripe, they always rot and burn; whence it is plain, that they are an annual plant, which lives no longer than till they have perished their feeds. And if the place where the old ones have rotted and burnt be examined, the feeds will be found after some time to have vegetated, and a great number of young truffles to be produced in the place: these, if not destroyed by the frosts, are what in the ensuing spring furnish the younger white truffles.

The truffle is very apt to be pierced and eaten within by a worm, and this, though a damage to the particular truffle, is of some service to the people who make it their busines to seek for them: for this worm, after a proper time paied in that stage, changes into a chrysalis state in the body of the truffle; whence he soon after comes out, in the shape of a beautiful white fly; and wherever these flies be found, they are an indication that there are beds of truffles near, as they are never bred in any other root.

These communicate a bitterness to the whole truffle, and make it unfit for the table; though if the whole be carefully searched into, the part eaten by the worm, and the hole by which it made its way in, will be found to be in reality the only bitter parts, and the rest of the truffle, when these are cut out, as good as ever: but, besides these destroyers, the microscope usually discovers on the surface of the truffle a multitude of other devourers, which are small animalcula, continually eating, and searching the cracks of the bark, as the places where the pulp is most easily come at: these somewhat resemble mites.

The earth that produces truffles rarely affords any other plants, these taking up all the nourishment it can afford: the earth all about them smells to very strongly of them, that they are easily found out by it, by the animals which carry their nozes near the ground: and those who sought after them soon found the way of using hogs to search them out; but these being a sort of unmanageable animals, dogs were found which would supply their place with more certainty, and much less trouble. Mem. Acad. Scien. Paris, an. 1711.

By a chemical analysis, truffles are found to abound in a volatile alkali salt, mixed with oil, upon which their smell, &c. depend. They never rise out of the ground, but are found, usually, half a foot beneath the surface of it.

Dr. Hatton has observed several little fibres exuding out of some truffles, and innuminating themselves within the foil, which, in all probability, do the office of roots. The truffles grow tolerably globular, as receiving their nourishment all around them; which they suck in through the pores of their bark or rind.

They are tenderest and best in the spring, though easiest found in autumn: the wet swelling them, and the thunder and lightning disposing them to send forth their scent, so alluring to the fwine: hence some of the ancients called them *cervina*, q. d. thunder-roots.

The ancients were exceedingly divided as to the use of truffles; some affirming them to be wholesome food, and others pernicious: *Aviceina*, particularly, will have them to cause apoplexies. For my own part, says M. Lemery, I am of opinion, they have both good and evil effects: they restoring and strengthening the stomach, promote the femen, &c.; but when used too freely, they attenuate and divide the juices immediately, and, by some volatile and exalted principles, occasion great fermentations, &c. though the pepper and salt, with which they are ordinarily eaten, do doubtless contribute greatly to these effects: their rich taste is owing to their not putting forth any stalk; in effect, their principles being united, and, as it were, concentrated into a little bulb, must yield a richer and more delicious flavour than if the juices were dispersed by vegetation through the several parts of the common plant. Some roast truffles under ashes; and others mix them in sauces.

In Italy, France, England, &c. they eat them as a great dainty, either in fried slices, with oil, salt, and pepper, or boiled thoroughly in their own broth. The hogs are exceedingly fond of them, and are frequently the means of discovering the places where they are; whence the common people call them *favine-bread*. See *Misy* and *Unxon*.

**TRUFFLE-WORMS**, a species of fly-worm which is found in truffles, and lives in and feeds on them, till the time it undergoes the common metamorphoses of these creatures, for the production of a fly, like that from the egg of which it was hatched.

These are very gill, and have two brown spots, easily distinguished near their hinder end, which are the two posterior flignta. They are all over white, and very transparent; and one may very easily distinguish the two black flocks of their two hooks, with which they tear the substance of the truffle, as the other species do their food: when they have arrived at their full growth, which is usually in a few days, then they leave the truffle, and go to seek some proper place, where they may rest during the time of their transformation; they enter the earth for this purpose, and twelve hours after they have gone into it they are transformed into an egg-shaped shell, of a chefnut-brown, of the same fort with that of the blue fleshy-fly.

These are the worms in a manner peculiar to the truffles; but, besides these, they often furnish nourishment to another species, very common in mushroons of the ordinary edible kind, and which has a yellow body, and a black cruflescent head. Reaumur's Hist. Inf. vol. iv. p. 374.

**TRUFTLORN**, in Geography, a town of Bavaria; 13 miles S.S.W. of Vilhohon.

**TRUG**, or Trug-Corn, Truga Fruentes, in our Ab'nant Caleones, denotes a measure of wheat. "Tre trug frumenti vel avenae faciantur duobus, inter praebentium de Hunderton eceleia Herce." MS. de Temp. F. 111.

At Lempiler, the vicar has trug-corn allowed him for x x officiating
efficacious at some capels of eale; as Stoke and Dockley, within that parish.

TRU is also a country word for a milk-tray, or hod to carry mortar in.

TRUHTCHEVSK, in Geography, a town of Ruffia, in the government of Orel, on the Dona; 80 miles W.S.W. of Orel. N. lat. 52° 35'. E. long. 33° 34'.

TRULLIZATION, in the Ancient Architecture, the art of laying on lira or layers of mortar, gypsum, or the like, with the trowel, in the internal vaults, ceilings, &c.

TRUMAU, in Geography, a small island on the eatt side of the gulf of Botnia. N. lat. 63° 54'. E. long. 23°.

TRULLUM, a barbarous word, formed from trulla, etc. and significing done; chiefly used in the phrase, council in trullo.

This was a council assembled, in the year 692, against the Monothelites, in the dome of the palace of Constantinople, called trullo; the name of which it has retained. It was also called the quinquifexum.

The trullo was properly a hall in the palace of the emperors of Constaninople, where they usually consulted of matters of state. This council, held in trullo, was the sixt quinquennial or general council.

TRUMAU, in Geography, a town of Austria; 5 miles E. of Baden.

TRUMBULL, a county of the district of Ohio, bordering on lake Erie, and containing 19 townships and 8671 inhabitants.—Also, a poll-town of Connecticut, in the county of Fairfield, containing 1241 inhabitants; 165 miles N.E. of Philadelphia.

TRUMMAU, a town of Prussia, in Oberland; 16 miles S.E. of Marienwerder.

TRUMAN, a town of Hindooftan, in Marawar; 40 miles S.W. of Tanjore. N. lat. 10° 15'. E. long. 78° 45'.

TRUMPE, in Ichthyology, a name given by none of the English writers to that species of whale, called by the generality of authors ceto, and balena major. This is the phyllifer microops of Linnæus, or blunt-headed cachalot. The Dutch call it the pot-whale fish.

TRUMPET, a musical instrument, the most noble of all portable ones of the wind-kind; used chiefly in war, among the cavalry, to direct them in the service. Each troop of cavalry has one. The cords of the trumpet are of crimson, mixed with the colours of the facings of the regiment.

The word is formed from the French trompette. Menage derives it from the Greek τρομπή, turo, a shell anciently used for a trumpet. Du-Cange derives it from the corrupt Latin trumpa, or the Italian tromba, or trometta; others from the Celtic trumpull, which signifies the same. It is usually made of brass; sometimes of silver, iron, tin, and even wood. Mose, we read, made two of silver, to be used by the priests (Numb. x.), and Solomon made two hundred like those of Mose, as we are informed by Josephus (lib. viii.), which shews abundantly the antiquity of that instrument.

As to the invention of the trumpet, some Greek historians ascribe it to the Tyrrhenians; but others, with greater probability, to the Egyptians, from whom it might have been transmitted to the Israelites. The trumpet was not in use among the Greeks at the time of the Trojan war; though it was in common use in the time of Homer. According to Potter (Arch. Græc. vol. ii. cap. 9.), before the invention of trumpets, the first signals of battle in primitive wars were lighted torches; to these succeeded shafts of flint, which were founded like trumpets. And when the trumpet became common in military use, it may well be imagined to have served at first only as a rough and noisy signal of battle, like that at present in Abyssinia and New Zealand, and perhaps with only one sound. But even when more notes were produced from it, so noisy an instrument must have been an unfit accompaniment for the voice and poetry; so that it is probable the trumpet was the first folk instrument in use among the ancients.

In the 96th Olympiad, before Christ 356, a prize was instituted at the Olympic games for the best performer on the trumpet; and the first performer who gained the prize was Timaeus of Elis; and Herodotus of Megara, a famous trumpeter, who lived about the 120th Olympiad, or 390 years before Christ, was victor at the different games of Greece no less than ten, or, as some say, fifteen several times. There performers on the trumpet appear to have been heralds and public criers, who not only gave the signals at the games for the combatants to engage, and announced their successes, but proclaimed peace and war, and sounded signals of sacrifice and silence, at religious ceremonies. Burney's Hist. of Mus. vol. i. p. 376.

Among the Romans, there were various instruments of the trumpet kind; as the tuba, cornua, bucina, and lituus. The tuba is supposed to have been exactly like our trumpet, widening gradually in a direct line to the orifice; the cornua was bended almost round; and the bucina was somewhat less; the lituus, which was almost straight, but crooked at the extremity, in the form of the auricular flue, whence its name, was a species of clarion, or octave trumpet, made of metal, and extremely loud and thrill, used for horns, as the clarion trumpet was for foot. Horace distinguishes it from the tuba or trumpet. See LITUUS.

The tuba, or long trumpet, called by the Hebrews the trumpet of the jubilees, may be seen in several pieces of ancient sculpture at Rome, particularly on the arch of Titus, on Trajan's pillar, and in a baso-relieve at the Capitol, representing the triumph of Marcus Aurelius.

The modern trumpet consists of a mouth-piece, near an inch broad, though the bottom be only one-third to much. The piece which conveys the wind are called the branches; the two places where it is bent, potencies; and the canal between the second bend and the extremity, the pavilion; the places where the branches take a smaller, or are folded, the knots; which are five in number, and cover the joints.

If an ellipsis (says Dr. Young, Lect. xxxii.) be prolonged without limit, it will become a parabola; hence a parabola is the proper form of the section of a tube, calculated for collecting a found which proceeds from a great distance, into a single point, or for carrying a found nearly in parallel directions to a very distant place. It appears, therefore, that a parabolic conoid is the bell form for a hearing-trumpet, and for a speaking-trumpet; but for both purposes the parabola ought to be much elongated, and to consist of a portion of the conoid remote from the vertex; for it is requisite, in order to avoid confusion, that the sound should enter the ear in directions confined within certain limits; the voice proceeds also from the mouth without any very considerable divergence, so that the parts of the curve behind the focus would in both cases be wholly useless. A trumpet of such a shape does not very materially differ from a part of a cone; and conical instruments are found to answer sufficiently well for practice. It appears, however, unnecessary to suppose, as Mr. Lambert has done, that they differ essentially in principle from parabolic trumpets. It is not yet perfectly decided whether or not a speaking-trumpet has any immediate effect in strengthening the voice, independently of the reflection of sound.
When the found of the trumpet is well managed, it is of a great compass. Indeed its extent is not strictly determinable; since it reaches as high as the strength of the breath can force it. A good breath will carry it beyond four octaves, which is the limit of the usual keys of pianos and organs.

The usual founds of the trumpet are represented by the following musical notes.

```
<table>
<thead>
<tr>
<th>Note</th>
<th>Name</th>
</tr>
</thead>
</table>
| G    | F
g |
| B♭   | A♭ |
| E♭   | D♭ |

There is an F♯ in the common trumpet unnoted in this scale.
```

Here the loudest found being denoted by 1, the pitch of the rell, or the number of their respective vibrations, during the time that C vibrates once, will be expressed by the numbers denoting the order of their founds, 2, 3, 4, 5, &c. The founds expressed by the musical numbers, that is, by 2, 3, 5, and their composites, which are 4, 6, 8, 9, 10, 12, 15, 16, are all perfectly in tune; but the founds expressed by numbers not musical, as 7, 11, 13, 14, are false. Three of these, viz. B♭, its octave, and A, distinguished by f placed over them, are too flat; and the remaining note F, marked with an S, is too sharp. See Musical Numbers.

The reason of which is, that B♭ ought to be a tone major below C: that is, its pitch to that of C will be as 8 to 9; but the proportion given by the trumpet is as 7 to 8; which being a less proportion than that of 8 to 9, it follows that B♭ will be too flat. The same holds true of its octave. And A being a tone minor above G, it ought to be to G as 10 to 9: but in the trumpet, it is to G as 13 to 12; which being less than the proportion of 10 to 9, it follows that A will be too flat. On the other hand, F ought to be a femitone major above E; that is, F ought to be to E as 16 to 15; but in the trumpet, F is to E as 11 to 10; which being a greater proportion than that of 16 to 15, it follows that F is too high or too sharp.

This systerm of trumpet-notes is an effectual confusion of those who are for introducing 7, 11, 13, and other primes into music.

In war there are eight principal manners of sounding the trumpet: the first, called the cawlquot; used when an army approaches a city, or paffes through it in a mafch. The second the bout-felle; used when the army is to decamp, or march; at which time the drums beat a general, when the troopers boot, faddle, and get ready. The third is when they found to horfe, when the offfembl begins to beat, on which the troopers mount; and then to the ifandard. The fourth is the charge, in the day of battle. The fifth the watch. The sixth is called the double cawlquot; The seventh the chamade: and the eighth the retreat. Besides these, there are various flourishes, voluntary, &c. used in rejoicings.

There are also people who blow the trumpet so softly, and draw to delineate a sound from it, that it is used not only in church-music, but even in chamber-music: and it is on this account, that, in the Italian and German music, we frequently find parts entitled tromba prima, or 1st, first trumpet; tromba IIa, seconda IIIa, treza, second, third trumpet, &c. as being intended to be played with trumpets.

There are two very great defects in the trumpet, observed by Mr. Roberts, in the Philomphical Transactions for 1692, N° 195. The first is, that it will only perform certain notes within its compas, commonly called trumpet-notes; the second, that though its ordinary compas is from double C♯-flat to C-fa-flat in all, yet there are four notes, the 7th, 11th, 13th, and 14th, in this progression, viz. B♭, F, A♭, and B♭, which are not exact in tune. The same defects are found in the trumpet-marine; and the reason is the same in both. Phil. Trans. Abr. vol. i. p. 607.

Trumpet-Marine, is a musical instrument, consisting of three tables, which form its triangular body. It has a very long neck with one single firing, very thick, mounted on a bridge, which is firm on one side, but tremulous on the other. It is struck by a bow with one hand, and with the other the firing is pressed or stopped on the neck by the thumb. Plate XXIV. Miscellany, fig. 4.

It is the trembling of the bridge, when struck, that makes it imitate the sound of a trumpet, which it does to that perfection, that it is scarcely possible to distinguish the one from the other. And this is what has given it the denomination of trumpet-marine, though, in propriety, it is a kind of monochord. Of the fix divisions marked in the neck of the instrument; the first makes a fifth with the open chord, the second an octave, and so on for the refi, corresponding with the intervals of the military trumpet.

The trumpet-marine has the same defects with the trumpet, viz. that it performs none but trumpet-notes, and none of these either too flat or too sharp. This Mr. Fr. Roberts (ubi supra) accounts for, only premising the common observation of two unison firings; that if one be struck, the other will move: the impulses made on the air by one firing setting another in motion, which lies in a disposition to have its vibrations synchronous to them; to which it may be added, that a firing will move, not only at the striking of an unison, but also of that of an 8th or 12th; there being no contrariety in the motions to hinder each other.

Now in the trumpet-marine you do not flop close, as in other instruments, but touch the firing gently with your thumb, by which there is a mutual concurrence of the upper and lower part of the firing to produce the sound. Hence it is concluded, that the trumpet-marine yields no musical sound, but when the flop makes the upper part of the firing an aliquot part of the remainder, and consequently of the whole; otherwise the vibrations of the parts will flop one another, and make a sound suitable to their motion, altogether confused. Now the aliquot parts, he these, are the very flops which produce the trumpet-notes.

Trumpet, Harmonical, is an instrument which imitates the sound of a trumpet, and which resembles it in every thing, excepting that it is longer, and confids of more branches. It is usually called a sackbut.

Trumpet, Listening or Hearing, is an instrument invented by Joseph Landini, to allude the ear in hearing of persons who speak at a great distance, without the affhance of any speaking-trumpet.

Instruments of this kind, represented in Plate XXIV. Miscellany, figs. 5 and 6. are formed of hollow conical tubes from eight to sixteen inches in length, with a wide mouth from about two to four inches in diameter, and terminating in a small X, X.
TRUMPET.

The principle upon which this instrument is constructed is obvious; for as sound is stronger in proportion to the density of the air, it must follow, that the voice passing through a tube or trumpet, must be greatly augmented by the constant reflection and agitation of the air through the length of the tube, by which it is condensed, and its action on the external air greatly increased at its exit from the tube.

In a speaking-trumpet, the found in one direction is supposed to be increased, not so much by its being prevented to spread all round, as by the reflection from the sides of the trumpet. But as the real action of the instrument, or the true motion of the air through it, is not clearly understood; different persons, according to their particular conceptions of the case, have recommended peculiar shapes for the construction of such trumpets: some having recommended a conical shape, others that which is formed by the rotation of certain curves round their axes; others, again, have recommended an enlargement or two of the cavity in the length of the trumpet, &c. That which has been more commonly recommended as the best figure for such trumpets, is generated by the rotation of a parabola about a line parallel to the axis.

In order to estimate the effect of this instrument, let us suppose A B (Plate XXIV. Mijellang, fig. 7) to be such a length of tube as admits one reflection of the found, emitted by the speaker, from the side B B; let A F be another length, in which the found or voice is reflected five times by the sides, viz. in B, C, D, E, and F: the sound striking the metal tube in B is the same as that at F; but the number of parts forming the periphery of the circle in B is to that in F, as the diameter B B is to the diameter F F; and therefore the intensities with which the parts of the metal will be moved in these peripheries, will be in the inverse ratio of the peripheries, or of the diameters B B, F F. But the parts of the metal move the air contained within the peripheries of the circle, or constituting their respective areas, which are as the squares of the diameters: i.e. the air agitated in B is to that agitated in F, as B B to F F; and consequently, the intensity of the found in the tube of the length A B, is to that in the length A F, as B B to F F, and the inverse ratio of the diameter B to F; or, the intensity in A B is to that in A F :: FF × BB :: BB × FF, i.e. dividing the last ratio by BB × FF :: BB : FF. But the intensity of the found increases the more frequently it is reflected from the sides: let then the number of reflections of the found in B be n, in F it will be 5n, and therefore the whole intensity of the found in B is to that in F as n × BB to 5n × FF. Consequentially, the longer the tube the more numerous will be the reflections, and the greater will be the increase of the found, and the farther it may be heard.

A man, speaking through a tube four feet in length, may be understood at the distance of 500 geometrical paces; with a tube of 15 feet, at the distance of 1800 paces; and with a tube 24 feet long, at a greater distance than 2500 geometrical paces.

The found will be also heightened by having the remoter aperture of the tube wide, more than if it were narrow. However, the effect of the tube in magnifying sound, either for speaking or hearing, depends principally upon its length: nevertheless some advantage may be derived from its particular form and shape.

Some have proposed the figure which is made by the revolution of a parabola about its axis, as the bell; where the mouth-piece is placed in the focus of the parabola, and confe-
consequently the luminous rays will be reflected parallel to the axis of the tube. But Mr. Martin observes, that this parallel reflection is by no means essential to the magnifying of sound; on the contrary, it prevents the infinite number of reflections and reciprocations of sound, in which, according to Sir I. Newton, its augmentation principally consists: the augmentation of the impetus of the pulses of air being proportional to the number of repercussions from the sides of the tube, and therefore to its length, and to such a figure as is most productive of them. Hence he infers, that the parabolic trumpet is the most unfit of any for this purpose.

He observes, that there is one thing more which contributes to the augmentation of the agitations of air in the tube; viz. the proportion which the several portions of air bear to each other when divided by transverse sections, at very small, but equal distances, from one end of the tube to the other.

Thus, let those several divisions be made at the points 

\[ a, b, c, d, e, f, \&c. \]

(see fig. 8.) in which let the right lines 

\[ ak, bk, cm, dn, \&c. \]

be taken in geometrical proportion.

Then will the portions of air contained between \[ B \] and \[ a \], \[ a \] and \[ b \], \[ b \] and \[ c \], \[ c \] and \[ d \], \[ d \] and \[ e \], \[ e \] and \[ f \], \[ f \] and \[ g \], \[ g \] and \[ h \], \[ h \] and \[ i \], \[ i \] and \[ j \], \[ j \] and \[ k \], \[ k \] and \[ l \], \[ l \] and \[ m \], \[ m \] and \[ n \], \[ n \] and \[ o \], \[ o \] and \[ p \], \[ p \] and \[ q \], \[ q \] and \[ r \], \[ r \] and \[ s \], \[ s \] and \[ A \], \[ A \] and \[ B \] form the logarithmic or logarithmic curve: whence Mr. Martin concludes, that a trumpet formed by the revolution of this curve about its axis, will augment the sound in a greater degree than any other figured tube whatever.

Caffeein also is of opinion, that an hyperbola, having the axis of the tube for an asymptote, is the best figure for this instrument. Muc heben. Int. ad Phil. Nat. tom. ii. p. 296. 4to. Martin's Phil. Brit. vol. ii. p. 248, 3d edit.

For other constructions of speaking trumpets by Mr. Conyers, see Phil. Trans. N. 141. for 1678.

TRUMPETS, Feet of, in Ecclesiastical History, one of the membranous feet of the Jews, kept with greater folemnity than the rest, on the first day of the month Tifri. (Numb. xxxix. 1—6. Levit. xxiii. 24, 25.) The day of this fast was the new-year's day of the Jews, in which the people were solemnly called to rejoice in a grateful remembrance of God's benefits to them through the last year, which might be intended by blowing the trumpets, as well as to implore his blessing upon them for the ensuing year, which was partly the intention of the sacrifices offered on this day.

The modern Jews have a notion, which they derive from the Midrash, that on this day God judges all mankind; and therefore, according to Balfnage, they zealot spyred, some a whole month, others four days, and especially the eve of this fast, in confessing their sins, beating their breasts, and homes in laashing their bare backs, by way of penance, in order to procure a favourable judgment on this decive day.

TRUMPET-Fish, Scopasus, in Ichthyology, a fish called also the bellow-fish. In the Linnaean system it is a species of the contrifus; but in the Arthaeon, a species of balistes. Pliny calls it terra. See Centriusus Scolopax.

TRUMPET-Flower, in Botany. See Bignonia and Lonicer.

TRUMPET-Honeysuckle. See Lonicer.

TRUMPET-Shell, or Whelk, Buccinum, in Natural History, the name of a large genus of shells, the characters of which are these: they are univalve shells of the form of a trumpet, according to old pictures, with a wide belly, and a large, broad, and elongated mouth; they have a distinct and regular tail, usually long, though sometimes short; they have a crooked beak, and the clavicle is often elevated, though sometimes depressed and contubulated. In the Linnaean system, the characters of this genus are, that its animal is a flag, the shell univalve, spiral, and gibbous, the aperture oval, ending in a short canal or gutter. Linnaeus enumerates fifty-one species. See Conchology.

The family of the buccina, when examined ever so strictly, is very large; but according to the general custom of authors, of confounding together several genera under the name, it is usually made to appear much larger than it really is. Lifer has made it comprehend a vast number of shells, by confounding it with the families of the murex and purpura.

It is not indeed peculiar to this author, to have confounded these genera: those who went before him have done the same; and Pliny has comprised the buccinum, murex, and purpura, under the general name cleys.

To avoid the general confusion, which arises from not distinguishing the families of the buccinum, murex, purpura, and vis, or screw-shell, it will be proper to observe, that there are regular characters, which distinguish them all, one from another: the characters are these: the buccinum differs from the purpura, in that it has a very long mouth of an oval figure, and has an elevated head; whereas the purpura has a round mouth, and a head somewhat flattened; the tail of the purpura is also usually furrowed, and is shorter than that of the buccinums.

The buccinum differs also from the murex in having a longer tail, by the smoothness and variety of colours of its coat, and by having a larger mouth less furnished with teeth; the murex having a smaller and longer-shaped mouth, its surface covered with points or spires, and several teeth.

It is easier to distinguish the buccinum from the screw-shell, as this is always more long and flender than the buccinum; it has also a flat mouth, and has rarely any tail.

The most singular species of the buccinum clafs, is one that has its mouth turned the contrary way to all other shells: this has been thence called by authors, the unique and the faniform.

The buccina generate in the warm months, and some species of them are seen very frequently remaining in pairs together, upon the rocks defeated by the tide on that occasion. These have been thence suppos'd to be of a different genus, and have been called buccina littoralis; they are usually found in copulation early in the morning. Rumphius de Tel. Aldrovand. de Tel. lib. iii. cap. 251.


The species of the buccina being very numerous, they are arranged under several distinct heads, according to certain obvious distinctions, and as are follow'd: of the buccinum, with long distinct tails and oblong mouths, there are thirteen species; of those with a short tail and a wide mouth, we have twelve species; of those with long erect clinicles, there are
are eleven species; and of those with less erect clavicles, and crooked ricta, there are also eleven species.

It appears from the writings of the ancients, that the famous purple dye, which they obtained from a shell-fish, was not peculiar to any one species; but was found in several of the smaller kinds of bucchina; some of which they called "nurices," from the hollow spines, or long and slender procecles, which run in different directions from their shells.

See PURURA.

M. Reaumur, when on the coasts of Poitou, found certain eggs of fishes arranged in regular order, and in great numbers, on the rocks and falted banks, which had the same property with the purple-dyeing liquor of the bucchina; it is not yet known to what particular fish they belong, or what uses they may hereafter be brought to serve.

Mem. Acad. Par. 1711.

Pliny seems to derive the name bucchina from bucina, a kind of musical instrument; but it is more probable that instrument took its name from the shell to which it bore resemblance, and of which it might probably have been anciently made. Plin. Hift. Nat. lib. ix. cap. 36. Phil. Trans. No. 282. p. 1727.

Bucchina lapidosum is a figured stone, shaped like the former, and probably only a petrifaction of the shell above mentioned.

Ray speaks of a bucchina which was not only petrified, but after petrifaction was converted into a pyrites.

TRUMPETER, in Ornithology, a name given in England to a particular species of pigeon, called by Moore the columba tibicen.

This species is of the middle size of the common pigeon, and made considerably like it; but it is pearly-eyed; it is of a mottled black, is feathered down the legs and feet, and is turn-crowned like the nun, and some of the other species; sometimes like the finnikin, but much larger: this seems to be the beast fort, as being the most melodious. The beast character to know them by, is a tuft of feathers growing at the root of the beak; and the larger this tuft is, the more they are esteemed; the reason of their name is, that they imitate in their cooing the found of the trumpet; but to be often entertained with their melody, it is necessary to feed them frequently with hemp-feed. Moore's Columbarium, p. 45.

Trumpeter is also a name given by Mr. Pennant to the pfophus of Linnæus; because it makes a strong noise with its mouth, which it answers by a different noise from its belly, as if it came from the anus.

Trumpeter, in a Man of War, one whose office is always to attend the captain's command, and be ready at the entertainment of strangers. In the time of an engagement his proper station is on the poop.

TRU, in Geography, a town of France, in the department of the Orne; 7 miles N.N.E. of Argentan.

TRUNCATED LEAF, among Botanists. See LEAF.

TRUNCATED PYRAMID, or CONE, is one whose top or vertex is cut off by a plane parallel to its base. See PYRAMID and CONE.

The word is formed of the Latin truncare, to cut off a part from the whole; whence also truncus, truncare, &c. In Heraldry, they lay truncated.

A truncated cone, or the frustum of that body, is sometimes also called a cutty-cone. See FRUSTUM. See also GAUGING.

TRUNCATED ROOF. See ROOF.

TRUNCHEON, of the French tronçon, and the Latin truncus, a baton; or a kind of short staff used by kings, generals, and great officers, as a mark of their command. See BATTON.

In our military language, it denotes a staff of command borne by a general officer.

TRUNCHEONS, Columns in. See COLUMN.

TRUNDLE, in Rural Economy, a sort of small framed contrivance with two handles at one end, and two low wheels at the other, which is trundled before the person using it. It is found convenient in conveying many forts of weighty matters that are in small parts.

TRUNDLE-Shot, is an iron flint about seventeen inches long, sharpened at both ends, with a round bowl of lead call upon it, about an hand-breadth from each end.

TRUNGIBIN, in Natural History, a name given by Rauwolf, Tournefort, and others, to a sort of manna collected from the allagi maruorum, as the common manna is from the afh; and used in the eastern parts of the world as a purgative. It is what we call the manna Percrum, and though it is itself a very fine and clean kind of manna, yet it is usually to carelessly collected, and mixed with so much filth, that it requires to be given in three times the dose of our in order to purge. The name seems very evidently to be a corruption of terenabin or terenjabin of the Arabsians, which was the word used by all their authors to express the manna Percrum.

TRUNK, a strong cheek or box of a roundish form, at least on the upper side.

TRUNK, in Anatomy, is used for the butto of the human body, exclusive of the head and limbs.

The trunk is divided into three parts: viz. one common, called the spina, and two proper, viz. the thorax or breast, and the pelvis; which see respectively.

TRUNK, TRUNCUS, is also used for the main body of an artery or vein, in contradistinction to the branches and ramifications of it.

The word is particularly applied to certain parts of the aorta and cava.

TRUNK, in Architecture, is used for the fulcrum or shaft of a column. Also for that part of the pedestal between the base and the cornice, otherwise called the dye.

TRUNK, in Gardening and Planting, the common name of the boll, body, or principal stem in all plants of the tree-kind, and of the stalk in thole of all the other forts. It is that part which rises immediately from the root, and is properly the stalk or chief body of the plant or vegetable from the root of which it proceeds, and which ramifies itself into the various boughs, branches, buds, leaves, flowers, and fruit which contribute to it, and are the production of it.

The trunks of most trees, and some other kinds of plants, are of a hard liguorous nature, but in others loft, and in the former are composed of several different original parts, such as an outermost coat or thin layer of hard matter of a fibrous quality, the fibres crossing each other in all directions; and the texture of which in some cafes is so very thin and clear, that the direction or net-work of them can be seen by holding the substance up against the light. The use of this finely woven tunic or coat is that of defending the true bark of the trunk, or the layer which lies immediately below or underneath it, from the action and injurious effects of the atmospheric air; the protecting and keeping open, by its callous nature, the fine pores of the exhaling and inhaling syfemes of vessels; the modifying the various impressions which are made by external objects upon the plant or vegetable; the securing and giving protection to the extreme ramifications of the aerial or aquatic vessels; and the covering of
of the cellular substance, in which the several fluids of it are elaborated and prepared.

A true and somewhat inner bark is situated next to the above in the trunk of the tree, and is of a hard texture, but adhering only loosely in trees to the covering which lies below it. In tender plants this covering is often of a soft pulpy nature, and has the denomination of skin.

A still more inner layer, which is often called liber, forms a third part or covering of the trunk in trees, which is of a membranous and flexible nature, being sometimes altogether separable from the true bark above it, and the white lamina which lies below it. This and the former coat of the trunks in trees are formed of different lamina, as is evident from macerating them in water, by which the cellular substance is destroyed, and the laminated appearance becomes fully displayed. These seem to be parts which are very essential to the life of the plant or vegetable, as in them the chief or principal functions of it are carried on; such, for instance, as those of nutrition, digestion, secretion, and some others. This is plainly proved and shown to be the case, by those trees which have hollow or rotten trunks, the inner being wholly destroyed, and by such plants as keep in vigour by the perfectly good state of their barks, although the internal parts of their trunks or flanks are wholly rotten and destroyed.

The next part, lamina, or coat, which affords a covering or portion to the trunks in trees, is that which has the title of alburnum or sapwood commonly given to it, and which is situated immediately upon the ligneous or woody part, being mostly composed of a rather soft white substance that is fearfully perceptible in some sorts of trees, but which in others is hard and perfectly visible, as in those of the oak, elm, and some others. This coat or part forms an imperfect coat of wood in the trunk, not having yet put on the confidence which is proper for perfect wood, the former of which must be arrived at before the latter can be put on. The hardness and solidity of this part of the trunk are somewhat in proportion to the vigour of growth in the particular tree or plant.

The succeeding ligneous part, is that which is composed of a compact fibrous substance, disposed in concentric layers, and which surrounds the middle or pithy part of the trunks. It seems as if it were constituted or made up of a congeries or collection of dried vacuolar parts; and in plants of the annual and biennial kinds commonly receives the denomination of flesh.

The left, middle, or pithy part of the trunks of trees or plants, is that which is situated in and runs through the hearts of them, and which is of a soft vacuolar nature, differing from that of the cellular textured kind in the perfect whiteness of its colour. It is in the greatest abundance while the trees or plants are in their young state of growth, diminishing in quantity as they mature in age and size, and at length not unfrequently wholly disappearing. Hence it is obviously necessary to them in the beginning of their lives and growths, but not for the continuance of them. It has been suggested as probable, that nature may preserve a superfluous nourishing fluid in this pithy part, if from any cause the young tree or plant should become dry, that then it may be taken up and converted into its food and support.

It must be evident, that what has been said concerning the trunks of trees and plants, must be equally applicable in every respect to the branches and other ramifications, as having the same parts continued from such trunks, of which they in fact form a part in the ways which have already been pointed out.

The trunks of trees and other vegetable productions during their growths are enlarged in their fize and thickness throughout their whole lengths, as well as in their heights, and not at any one particular point or part only, as has been fully proved by numerous and repeated trials of various kinds. And in those which are of an annual or one year's growth and duration, the enlargement or expansion in length continues simply until they have protruded and completed their flowers and flowering proclives, when the constituent parts of the trunks, flanks or flanks begin to take on a hardened form, and at length, in a gradual manner, become quite dry and rigid.

But in those which are of a perennial nature, or of some years growth and duration, this enlargement or increase in the trunks, flanks, or flanks, continues until such times as the leaves decay and fall off in the autumnal season, when a germ or bud protrudes and fixes itself in the place which contains the bafis or rudiment of a new trunk or flanks, that by degrees during the winter months increases in fize until the advance of the vernal season, when, throwing off its former covering, it continues the enlargement or increase of the new trunk or flanks, in the same manner as the inferior or lower part was augmented during the former year; as in the place where the bud is situated, a swelling out takes place and extends itself, which is so continued with the new trunk or flanks, as fearfully to leave any mark or vestige where it was.

The increase of the trunks or flanks in breadth, however, does not proceed from the dilation or enlargement of the woody layers of them, but from the generation and production of new lamina or layers, which are every year deposited and added to them, by the vessels which are contained in the barks of them, as has been sufficiently shown by different experiments.

It has been further shown by observation and experience, that the trunks or flanks of trees and some other plants are augmented every year by two woody lamina or layers, but that the fize or thickness of them is by no means each year exactly the same, this depending in some measure upon the vigour of growth, age, and state of the climate, as they are the greatest when the state of growth is the moist, the age in the middle degree, and the heat of the situation moderate; for the warmer the summer, the more flender the bark, or outward covering.

The trunks, or flanks, and flanks, are of trees and plants, are of several different kinds, and distinguished by many different names. Some trees have trunks or flanks which are very short and thick, others have long large clean ones; and some again have them short, small, and clean, others more knotty; some are very crooked, others quite straignt; and there are still many further differences in these and several other respects. Trees of the oak, elm, beech, and cherry kinds, and the boys, the fire, the tribe, have, in general, the largest, thickest, and clearest trunks or bolls; but there are many other varieties of trees which furnish good useful trunks and flanks, such as the lime, the walnut, the willow, the poplar, the chefum, &c. in particular situations. The trunks of trees are valuable as timber, according to the particular uses and purposes for which they are designed, and to which they are put. Thus in ship-building, their being properly crooked is a great recommendation; while in many works of carpentry and other depositions, their being perfectly straight renders them of the moit estimation. In fact, having a straight clear growth is in general a favourable property, and a circumstance which makes them readily disposed of in the markets.

In plants of other kinds the trunks are often small, so as more properly to deserve the title of flanks; and at other times
times they are of a soft and pulpy nature, so as to demand
the name of ifalka. See Plunt, Stalk, and Stem.

In thefe forts of plants the flalk is the mofi common fort
of trunk or ifem, both among small plants of the tree kind,
and thofe of the nature of herbs, as producing and supporting
the leaves, flowers, and fruit. The name of culm is given
to trunks or ifalks of the straw or haulm kind, which are
peculiar to grasses and grain, and equally bear the leaves,
flowers, and produce or fruit. Frond is a term which is
constantly applied to the trunks or ifems of plants of the
palm and fern kinds or tribes, which are of a compound na-
ture, as being formed of a branch and leaf united or blended
together, and not unfrequently the flower and fruit too.
The peduncle is a term signifying that fort of trunk or
flowering-flalk which rifes fometimes from the root, but
more commonly from the branches, rafing or elevating
the flowers and fruit, but not the leaves. The petiole is a term
implying that fort of trunk or leaf-flalk which bears the
leaves only, and not the flowers.

The term flage is a name which is applied to herbaceous
naked ifems or trunks which ferve to elevate and rafe up
the frutification only, as in those of the hycinth and daf-
fodil kinds.

The term flipes is applied to that fort of trunk or ifem
which is found in fome kinds of flufhy plants, such as
thofe of the common muftroom, and others of the fungus
tribe. See thofe terms refeptively.

Trunk is therefore a term which has a very extenfive ap-
plication in the cultivation of garden vegetables of theculinary
and flowerory ornamental kinds, as well as in planting, to
trees of the timber and other forts, as is more fully fhewn
and explained in fpeaking of flalk, flem, timber, and trees.
See thofe heads.

Trunk, in Canals, denotes a wooden culvert fometimes
made under canals.

Trunk and Valve, is a trunk of wood laid through the
bottom of the bank of a canal, by which water can be let
out of the canal, by drawing of the valve at its inner end.

Trunk, in Mining, is a flreek or flrakes (q. d. ftream)
with a very small ftream or dribble of water, to wash the
flime of tin or copper ore, by which the lighter earthly parts
are carried off with the water. The operation is called
trunking the flrakes.

Trunk is also popularly used for the fnout of an ele-
phant, by naturalists called the probosces.

Trunk, in Natural History, a pointed, hollow, flemder,
and oblong body; joined to the fore-part of the heads
of many insects, and ferving them for fucking the blood
or juices of the animals, or vegetables, on which they feed.

The trunks of flies ferve for dilufing fhining many genera
of thofe little animals, from their different form and other
accidents. Some of these are a tube formed all of one
fimple piece, and others composed of feveral shorter pieces,
nicely joined together: fome are thin and as it were flufhy,
others thick and flemhy; thofe of fome flies are terminated
by a fort of broad foot, or by a fort of thick lips; and
thofe of others have no lips, or at leaft no fenible ones;
and others are made in form of a fpindle hollowed at the
end.

It is often neceffary to have recourse to the microscope,
to dilufing with nicey and exaftnefs between thofe.

Without the affifance of glaffes, however, it is easy to
dilufing among the flies of different genera, three dif-
ferent manners of carrying this organ when in a state of
inaction. Many flies have trunks which they can shorten,
when they are not using them; thofe are fixed in the fore-
part of the creature's head, where there is a cavity deified
receive them when they are not in use. In many species,
this cavity is no more than a mere finus, or hole, in the
fore-part of the head; but in others it is more nicely con-
trived, the anterior part of the head lengthening itself,
and forming a kind of arched vault for its reception.
Other flies have trunks which in the time of inaction are turned,
or fomewhat folded from above downwards: the trunks of
bees are of this kind.

There are others alfo, which have their trunks contained
entirely in a fort of cafe, where they lie ftraight at length,
without being either turned or folded; but they are able to
incline them in any direction, in regard to the position of
their legs: of this kind are the trunks of the cicade,
gnats, &c.

Among the butterfly flafs, a great number are furnifhed
with a trunk; but there are also a great number that have
it not: the fly of the flilk-worm, and many, as well larger
as smaller kinds, are without this organ. Thofe species
which have it, flew it to the firft view; it is placed in the
middle of the head, directly between the two eyes. And
though in feveral fpecies it is very long, yet it takes up
even in thefe but very little room; when it is not in use, it
is always rolled up in a spiral form, in the manner of the
spring of a watch; and even the shortest of them are thus
turned as well as the longeft.

There are among the butterflies, fome which never fettle
upon any thing, but are eternally upon the wing, in the
manner of swallows: thofe feed on the wing as thofe birds
do. We often fee them buzzing about a flower in the
manner of a bee, and in that cafe they fufain themselves
in the air with their wings, while they unroll their trunk, and
thift their extremity into the flower, to fuck from its bottom
the honef-dew, which is the common food of them, of
the bees, and of many other insects. It has been much dif-
puted, among the curious obervers of nature, whether the
trunk be originally composed of two parts, or two trunks
laid clofe to another; or whether it were owing to its flemder
ftructure, that it was eafily fplit by breaking its parts.

Mr. Bonani was of the firft opinion, and Mr. Riget
agreed with him at firft, but he afterwards became of the
contrary opinion, and thought that they really broke in
this fplitting, being originally only one; but Reaumur has
determined the quefion in favour of Bonani: having by
repeated obervations, found them composed of two para-
lel trunks, nicely and evenly laid fide by fide together.

The action of the trunk in fucking is eafily seen on
a giving a piece of fugar to a butterfly that has been kept
without food for fome days, after its being produced out
of the chryfalis; many of the fpecies will in this cafe feed
on the fugar in the fame manner that they would on the
juices of flowers, and will fwoe that the ufe of their
rolling up their trunk at times, is the swallowing what they
have received into it. The trunks of the feveral fpecies of
butterflies are as different in colour as in shape: fome are
black, others reddish, many of a cheafnut colour; fome are
also of a pale brown, and fome of a beautiful yellow; many
of them alfo are hairy on the under fide, and many are
smooth. The thicker trunks are always shorter than the
flat ones, and have only one canal. Reaumur, Hist. Inf.
vol. i. p. 287. 293. 309.

Trunk of Gnats, the iftrument by means of which the
gnat flrikes the flem, and fucks the blood from animal
bodies.

This is a machine well worth an attentive obervation.
As fine and mall as thofe inftrument appears, it is neverthe-
less of a very complex stricture. The piercer, or more pro-
perly
The several species of gnats have great variety in their trunks; and in the observing of many kinds, the true structure of that organ in all will be most regularly and easily found. Some have the case of the piercers only one single tube split lengthwise along its upper part; others have this slit made by the juncture of two cafes, which cover closely a great part of its circumference, and others have the two tubes so well adjusted, and nicely fitted to one another, that a good glass cannot discover them from the rest of the trunk, when in a state of rest; but in others this structure is easily discoverable, as the extremity of one of them, when bent fixed, is still to be discovered somewhat separated from the trunk, and adorned with a pencil of short hairs, like those of the antennæ. The male gnats, which have their antennæ feathered, are those which have the plumes at the extremities of these additional pieces of the case of the trunk; and these have not the beards which are found fated over the trunks of the other species of gnats.

In some gnats four darts are thrust out occasionally from the opening side, one of which serves as a thraeth to the other three. The fides of them are extremely sharp, and they are barbed or indented towards the point.

Out of the immense number of gnats that one sees in summer, in wet places, it is easy to determone that very few have any chance, even once in their lives, to suck the blood of larger animals. The rest, however, are far from being doomed to perpetual famine; the herbs of the field afford them a sufficient nourishment; for these, like many other of the insect tribes, are partly carnivorous, partly otherwise, and feed equally on flesh and vegetables. Reaumur, Hiift. Infecf. vol. iv. p. 580, seq. Baker's Misc. 1743. p. 205.

TRUNK, Fire, in a Fire-ship. See Fire-Ship.
TRUNK-Manna. See MANNA.
TRUNK-Roots of a Plant, are little roots which grow out of the trunks of plants.

VOL. XXXVI.

There are of two kinds: 1. Such as vegetable by a direct defeat, the place of their eruption being sometimes all along the trunk, as in mints, &c. and sometimes only in the utmost point, as in some other plants and trees.
2. Such as neither affend nor defend, but shoot forth a right angles to the trunk, which, therefore, though, as to their office, they are true roots, yet, as to their nature, are a medium between a trunk and a root.

TRUNKED, among Herald, is applied to trees cut off at each end, which are said to be trunked or truncated.

TRUNNIONS, or TRUNIONS, of a piece of ordnance, those knobs or bunches of metal in a gun, mortar, or howitzer, which project from the piece, and bear it upon the cheeks of the carriage.

TRUNNION-Ring, is a ring about a cannon, next before the trunnions.

TRUNNION-Plates, are two plates in travelling carriages, mortars, and howitzers, which cover the upper parts of the side-pieces, and go under the trunnions.

TRUNS, in Geography, a town of the Griifons, where the independence of the Grey League was affirm'd, and an alliance concluded between the chiefs and the communities, on the Rhine; 7 miles W. of Halltze.

TRUNTZ, a town of Prufia, in Ermeland; 9 miles N.E. of Elbing.

TRURO, a large market-town and borough in the western division of the hundred of Powder, and county of Cornwal, England; is situated in a vale at the conflux of the two small rivers Kenwyn and St. Allen, 22 miles S.S.W. from Bodmin, 46 miles S. by S. from Launcefton, and 257 miles W.S.W. from London. It is called in ancient records Trevery, Tryereu, and Trurh burg. It was one of the decayed market-towns for the repairs of which an act of parliament was passed in 1549; but it has now become a place of considerable trade. Its central situation with respect to the commerce and chief products of the county, its improved and still improving state, the regularity and handsome appearance of the buildings, with its increasing population, justify its title to pre-emience amongst the towns of Cornwall. Leland says, 'Ther is a cauliffe, a quarter of an acre bot well out of Truro longeing to the erles of Cornvalle, now cleane downe. The fite theref is now used for a shotting and playing place, out of the town of Truro.' This castle is not mentioned in Domes-day book, and was therefore erected after the Conquest. William of Worcester speaks of it as being in ruins in the time of Edward IV. It stood on an eminence on the more weftly side of the two currents; its only remains are a waite area, and an artificial mount or keep, the earth of which is daily decreasing by its being applied to other purposes. From the increas of the buildings since the time of Leland, the fite is now included within the town, which appears to have derived its origin from the castle; but was fo nearly coeval with it, that it is noticed as existing within a century after the Conquest, and as having a charter in the reign of Henry I. The corporation of Truro, as established by a charter of queen Elizabeth, bearing date 1595, consists of a mayor, four aldermen, and twenty capital burgesses. In these twenty-five persons, the right of electing two members to parliament (poftfelled by the borough ever since the reign of Edward L.) is vested; though the number of inhabitants, as ascertained by the population return of the year 1811, is 2482, when the houses were enumerated at 400. The burgesses of Truro have fundry privileges by grant of their ancient lords; and the mayor's jurisdiction extends even over Falmouth. This laft mentioned privilege, which is said to have been granted

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by king John, and is recorded in the herald’s visitation of 1620, was lost in the early part of the last century; it having been then contended by, and decided in favour of, the inhabitants of Falmouth, who now enjoy the jurisdiction of their own port. This town is situated in the three parishes of St. Mary, St. Clement, and Kenwyn. St. Mary’s church is a spacious edifice, of the architecture which prevailed in England about the reign of Henry VIII. It consists of two aisles of equal size, and a smaller one; and has a modern steeple, which does not correspond with the body of the church. In the windows are several fragments of painted glass; and in one of them, on the south side, is the date 1518, the year when the church was erected. Here are seven meeting-houses for the accommodation of dissenters of various denominations. Truro is one of the original coinage towns; and here only, and at Peuzance, with the exception of a few times at Helston for the convenience of the merchants, have the coinages of late years taken place. Most of the tins is coined here, and Truro is exported here and from any port in the county. The blocks lie in heaps about the streets, and are left entirely unguarded, as their great weight renders it difficult to remove them without immediate detection. Here is a coining-hall; and Hals, in his Parochial History, mentions the town possessing one so early as king John’s reign. Here is also a manufactury for converting block-tin into bars and ingots: the weight of the former is from eight ounces to one pound; that of the latter, from sixty to seventy pounds each. The bars are exported to the Mediterranean and Baltic; the ingots are sent to the East Indies. Considerable quantities of copper-ore are exported from this town to Wales. A manufactury for carpets has been recently established, which is carried on with great facility, and forms a material addition to the export trade. The improvements made in Truro of late years have been very considerable, and particularly since the year 1794, when an act of parliament was passed for lighting and paving the town. The principal street was formerly contracted, and disfigured by a row of houses stretching along the middle from the coinage-hall to the market-place. These have been removed, and a spacious opening formed, from which a new street is built, diverging from the other at right angles. A literary society and a county library were established here in the year 1792. A theatre and assembly-room have also been erected in that part of the town called the High-Crofts: and on the 12th of August, 1793, a county hospital building, was opened in Kenwyn parish, under the patronage of the prince of Wales. A free grammar-school was founded at an early period; and there are two exhibitions, of 32l. per annum, at Exeter college, Oxford, for scholars of Truro school, founded by the trustees of the charitable bequests of the Rev. St. John Eliot, who died in 1760. A central school on Dr. Bell’s plan was established in 1812, in which there are 150 boys and 70 girls. An hospital for ten poor housekeepers in St. Mary’s parish was built in 1832, pursuant to the will of Mr. Henry Williams, who endowed it with lands which now produce 120l. per annum. The corporation make widows the exclusive objects of this charity, and allow them a pension of four shillings each per week and clothes. The market at Truro is held by subscription; the claim to it having been certified and allowed in the reign of Edward I. Here are now two market-days, Wednesday and Saturday, both well supplied with butcher’s meat, fish, and other provisions. A corn-market is also held on Wednesday. Four annual fairs are likewise kept for cattle. About a mile from Truro, on the road to Falmouth, at Callanick, is a large smelting-house for tin. It consists of ten reverberatory furnaces, six feet in height, and about twelve feet in length, each. Culm-coal is used as the flux, in the proportion of about one-eighth to the ore, of which nearly 600 cwt. is smelted within six hours, and yields about 350 cwt. of tin.—Beauties of England and Wales, vol. ii. Cornwall; by J. Britton and E. W. Brayley, 1802. Lysons’s Magna Britannia, vol. iii. 1814.

Truro, a town of Nova Scotia; 40 miles N. of Halifax.—Allo, a town of Barnstable county, in the state of Massachusetts, on the E. side of Cape Cod bay, containing 1200 inhabitants. N. lat. 42° 1’. W. long. 70° 2’.

TRUSAM, a river which rises in the Brifgap, passes by Friburg, &c., and joins the Elziz, near Riegel.

TRUSS, a bundle, or a certain quantity of hay, straw, &c.

A truss of hay is to contain fifty-six pounds, or half a hundred weight: thirty-six trusses make a load.

In June, July, and August, a truss of hay must weigh fifty pounds. The truss of straw is likewise to weigh a certain weight, but this is various, in some degree, in different places. In other matters, the trusses differ greatly according to custom or other circumstances.

A truss of forage is as much as a trooper can carry on his horse’s crupper.

TRUSS, or Bunô, among Floris’s, is a term applied to the tuft of flowers which is formed at the top of the main stem or stalk of some plants of that kind, and which, in the auricula and polyanthus fort, consists of a small bunch of flowers, to which the style of pips or blossoms is given, and which are supported by as many little foot-styles, proceeding from out of the top part of the main stem; some of the properties of which are these: the pips or blossoms, which are the flower parts, consist of the disk or outer rim, the eye or inner rim, the tube or pipe, and the thurm, chives, or apices. The pips or blossoms, in these kinds of flowers, should always be rich, and of a lively good colour or colours, as such as may immediately strike and captivate the mind of the beholder with the idea of real beauty; as this is the property which is the foundation of all the others in these sorts of flower-plants: consequently, where the colours of the flowers in them have a faint or dead appearance, or are of an ordinary and inelegant tinge or hue, they are good for nothing, even though the whole of their other properties should be the most excellent.

In all the painted or striped flowers of these sorts, the colours should conflantly be so equally distributed over the rim or disk, as that there may be an equal uniformity amidst the whole variety; in order that, upon the whole, the fight may not be in the least dissimulated or offended with any fort of disproportion, or perceive one side to be of a brighter or darker hue or shade than that of another. The edges of the rims should be round, or at least so near it, that the indentures may bear but a small proportion to the disk; as when these are deep, and the points of the petals stand in somewhat the flat-form, greatly divided, the largeness of the vacancies will affect the fight with an evident deficiency; and the face is still worse in those pips or blossoms which are liable to run out into a greater breadth on one side of the eye than the other; such irregularities and disproportions are very disgusting in these flowers. The eye, which is the iris or little ring that envelopes the tube or pipe, and which ought to be formed in the manner of the disk, either perfectly or nearly round, and of an entire clear colour; and of a snowly or pure white, in all painted or striped flowers; and of either a white, bright yellow, or good straw...
TRUSS.

The farina, mealy, or dultry property should also be fine; as, if coarse, it will be unpleasant to the eye, or in appearance. The eye of the flower should appear entire, though not separate from the disk or rim; that is, it should be blended with or shaded into it in such a manner, as not to occasion any indistinguish between the edges of the one and the other; as, in flowers where these two properties of the eye are imperfect, the lively contrast, or difference between the rim and the eye, which otherwise reciprocally display, and follow each other off to the belt and molt advantage, is, in a great measure, lost and destroyed. The face of the whole pip, rim, and eye, should likewise be so opened as to lie perfectly or very nearly flat; as when it either inclines inward, which is termed cupping, or throws itself backwards, as in particular flowers, such as the martagon lily, the true form, as well as colours are in some degree obscured by being covered and put out of sight. See True and Thrush.

The length of the pedicles which support the pips or blossoms in the trufs, should be proportioned to the number and size of the pips which they fullain; as, if they be very long, and the pips small, there will be unfightly vacancies in the trufs; or if they be short, and the blossoms many and large, they will be too much crowded together, so that neither the colours can be fully viewed, nor the other properties of the pips be displayed. The pedicles should also be sufficiently elastic, firm, and strong, in order that they may not droop by the weight of the pips or blossoms, and fall loose and in a disarranged manner, but fullain the trufs firmly and closely, without either vacancy or crowding. They should, too, be nearly all of the same length, so that the pips may stand together at the same height, and form a regular umbel, or rather corymb, which is the formal perfection of the trufs. The pips should also be nearly of the same size and colour, so as not to be readily distinguished from each other; as otherwise the unity and harmony of the trufs will be destroyed, and though ever so plentifully formed, would appear as if taken from different sorts of these flowers. A plant of these kinds should blow freely, and expand all its pips or blossoms at the same time; as, by this means, the colours in them all will appear equally fresh and lively; whereas in those which do not blow some of the pips until others have puffed their prime, the whole appearance of the trufs falls much short of that beauty which would otherwise be conspicuous.

The flowers of trufs which support the trufs, and which is mollly termed the main stalk, should be elastic, straight, and sufficiently strong for bearing it without drooping. It is also an excellency in it to be erect and lofty, as thereby the trufs, and of coarse the whole flower, will make a more flatly, commanding, and handsome appearance. Such plants of these kinds as have these properties or qualities can hardly fail to please the curious florists; yet as, on the one hand, some plants may be somewhat deficient in several particulars of leafs confederacion, and still be juttly deemed fine and valuable flowers; so, on the other hand, it will be an additional excellence, in such as have all these properties, that they naturally stand long in bloom, and wear their colours without alteration or fading in any way. The trufs or bunch is probably so named by florists, in consequence of its having naturally something of that appearance about it.

Trusses, in the language of Surgery, is a particular sort of bandage, or apparatus, employed in cases of ruptures, (see Hernia,) for the purpose of keeping up the reduced parts, and hindering a fresh protrusion. It must of coarse be adapted to the situation and nature of the rupture. As a truf is of all the inventions of surgery one of the most important, and highly essential to the health of a large portion of the human race, the most advantageous modes of constructing and applying it are objects which it is as much the duty of the surgeon to know something about, as about any other means of curing or alleviating the danger of so serious and common a difrace as a rupture.

A truf which fulfils its intention properly, should comprize the neck of the hernial fac, and the ring or external opening of the hernia, in such a manner, that a protrusion of any of the contents of the abdomen will be prevented with complete security. Hence, it is the indispensible quality of a good truf, first, to make effectual and equal presfure on the parts indicated, without causing pain or inconvenience to the patient; secondly, not easily to fip out of its right situation, in the varying motions and positions of the body.

The different kinds of horiary bandages may be reduced to the two classes of elastic and inelastic. The latter are composed of leather, fultan, dimitry, or similar materials. These cannot be at all depended on, and should, therefore, be entirely banished from surgery. Since (as Mr. Lawrence has remarked) the fize of the abdomen varies according to the different fates of the vifera, and to the motions of its parcites in refpiration, a non-elastic bandage muft vary confantly in its degree of tightnefs, and keep up either too great or too little pressure. The omen tum, or inteftine, easily fips out when the opening is not exactly clofed, and the patient who wearsuch a bandage, muft be in a state of constant infefticity. Those who lead an active life, or are obliged to use laborious exerfions, will be more particularly expofed to risk. If the patient, after experiencing these defects, endeavour to remedy them by drawing the bandage tighter, he may confine the vifera, but he produces other inconveniences. The increafed pressure injures the perifmatic chord, and may affect the tefifice: the integuments become red, painful, and excoriated; and the bandage must be entirely laid aside, until the parts have recovered. Richter has often seen painful tumefiation of the tefifice, hydrocele, and even eiricocele, produced from this caufe, and entirely difiggated by the employment of a proper truf. Traite des Henries, p. 24.

He also saw the pad of a non-elastic bandage exifte in the region of the abdominal ring, a considerable inflammation, which terminated after a few days in suppuration. The hernia never appeared again at the cure of the defects. The inflammation had extended to the neck of the fac, and obliterated that part. Lawrence on Ruptures, edit. ill. p. 69, 70.

Every truf consists of a pad, for comprifing the ring or aperture through which the hernia protrudes, and of another piece, which surrounds the abdomen. To these are sometimes added a thigh-ftrap, which palies under the perineum, and a fcapulary, which is applied over the fhouler. The ufe of the two latter appendages is to keep the pad from flippin up or down, an inconvenience which it is difficult to prevent in certain caufes, unless a fcapulary or thigh-ftrap be worn. In the inelastic trufles, the piece which extends round the body, is a fimple girt or band; but in every elatic trufs, this part is constructed with a spring, which is the most important thing of the whole inftrument.

Elastic trufles, when they are well made, and fit properly, are to be preferred to the inelastic, in regard to security. They yield to the varying motions of the body; and the liable to fip off the part upon which they are intended to

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TRUSS.

Prefer; and, in general, do not require the use of a thigh-strap, which is usually a very disagreeable part of the trufs to a patient.

The valuable properties of this instrument (says Mr. Lawrence) depend entirely on its spring, which keeps the pad constantly pressed against the herniary opening; and gives it a power of reaction, by which an uniform pressure is maintained under varying attitudes. This elasticity can be attained only by the employment of felt. In the first attempts at procuring something better than the non-elastic bandages, iron was used; and the instruments fabricated by Blegey at Paris were constructed of this metal. It is obviously inadequate to accomplish the ends which we have in view, in treating hernia; yet it is only at a comparatively recent period that its defects have been discovered. Arnaud, whose writings contain much valuable information on this subject, recommends for the spring of a trufs a mixture of malleable iron and felt, so that the instrument may be moulded by the hand to any particular shape which the patient may require; and he is followed on this point even by Richter. A trufs which admits of such management, much in effect be expofed more or less to the objections which apply to the non-elastic bandage; and the only material which poaffes the requisite qualities of firmness and elasticity, is well-tempered felt.

The most important part, then, of an elastic trufs, consists of a faft and narrow piece of felt, adapted to the form of the body, and called the spring. This passes round the afected side of the trunk, terminates anteriorly on an expanded plate of iron, to which it is rivetted, placed over the mouth of the fac, and extends behind to various diftances beyond the spine. The posterior surface of the plate is furnish'd with a convex cushion, termed the pad, and adapted in form and fize to the opening which it is designed to clofe. The spring is covered externally with leather, and that it may fit easily on the body, its inner surface is lined with some soft fabric; a spring flap, extending from its posterior end, paffes round the found side of the trunk, and is faftened to a hook on the front of the plate. This ftrap, being perforated by feveral holes, enables the patient to tighten or loofen the trufs at pleafure. Lawrence on Ruptures, p. 71, 72. edit. 3d.

In a note, this gentleman observes, that the spring of the trufs has commonly been a femicircle, with the posterior end refting on the spine. Camper proposed to carry it round to the anterior superior spine of the ilium on the found side; and Scarpa very much approves the plan. Trufles of this form fit with a firmernef which cannot be given to the others by tightening the flrap. They keep up the rupture much better than even a ftronger spring of the other kind. Hare-skin, with the hair outwards, is conlidered the best article for covering the spring, with a view of keeping it from the ill effects of the perifpiration.

When it is neceffary to make ftrong compreffion, as in large old ruptures, and in perfonis who cannot avoid labour and exercife, the elafic spring should be made accordingly thicker and broader. But an object of the firft-rate imporance is to make the spring pref equal upon every point of the body which it touches. This is what demands the earneft attention both of the furgeon and the instrument-maker, especially as the hips of fome individuals are flat and narrow, while fome of other perfonis are broad and promifcent. A thick, flexible, metallic wire, accurately applied round the pelvis, will ferve to take the compreffion and proper shape of the spring, which may afterwards be altered a little, if found neceffary. The wire, however, should be

somewhat longer, on account of the length of the spring being diminished in the construction of it. Callfen difproves of springs which extend quite round to the oppofite hip; but he thinks a certain bend of the spring downward, near the pad, is ufeful in trufles for inguinal ruptures, as, by this means, the part of the instrument which goes round the pelvis can be made to fit more clofely, and is placed at a convenient diftance from the trochanter, fo as to be lefs liable to derangement. The neck of a trufs for a femoral hernia fhould be shorter, and, in general, the instrument requires in this cafe the employment of a thigh-strap to keep the pad from flipping into the bend of the groin.

The pad of a trufs is frequently composed of a piece of cork covered with leather, with the intervention of some wool or horifc-hair. Proposal have been made to use pads which are formed of bladder or elafic gum, filled with air, but we know nothing of the real merits of fuch contrivances, nor should we expect them to anfwer. Callfen gives a general preference to pads which have a flat and not a conical surface, which lift form not only produces lefs equal pressure, but is more liable to flip. The fhape and fize of the pad fhould of course correspond to the figure and dimensions of the ring, or opening, at which the rupture protrudes. In the inguinal hernia, the pad fhould be long and oblique; in the crural, shorter; in the umbilical, round; and in the ventral, for the mofl part, oval. In large old ruptures, the pad fhould be large accordingly; and in fmall recent cafes, it fhould be fmall in proportion. For fat perfonis, the pad fhould be firm and prominent; but for thin perfonis, it fhould be fatter and softer. Nay, it has even been found fometimes neceffary to accommodate the fhape of the pad to the various degrees of convexity or flatnefs of the os pubis.

Trufles are fometimes fabricated with a pad moveable on the spring, instead of being rivetted to it. This may be inclined upwards or downwards, according to the form of the abdomen; and it is retained at the defired point by a spring flitting into the teeth of a rack. In others, the plate contains a fcrew, by which the cushion is pulfed farther inward, or allowed to recede, at pleafure. Although there cannot be a doubt that fome of these inventions poaffes considerable merit, and are in certain infances, fuperiorly ufeful, it muft be confefled that, in general, their utility is not fo much greater than that of common pads, as to make amends for the want of simplicitv and the increafe of expense. We fhould be forry, however, to fay any thing that would unfairly difcourafe all fuch ingenious endeavours to improve fo difficult an instrument to make perfect as a trufs; and we therefore repeat our belief, that there are particular cafes, in which pads, with racks, fcrews, fprings, &c. may be employed with great advantage.

Notwithftanding every care, sometimes even elafic trufles cannot be hindered from flipping away from the part which they are designed to comprefs. Sometimes they flip downwards, which in fat perfonis is generally caufed by the projection of the abdomen. Occasionally, the fault consists in the instrument becoming displaced in the direction upwards, which moftly happens in thin perfonis, and is produced by the flatnefs of the abdomen. In the firft cafe, the displacement is to be prevented by the ufe of an elafic fcapulary; in the fcond, the flipping of the pad upwards is to be prevented by the employment of a thigh-strap.

When a patient is afflicted with a rupture on each fide, the two protrusions may be very well kept up by means of a fingle trufs, made with two pads, which are joined together, at the exact distance of the rings from each other, by
by a piece of flax, applied over the convexity of the symphysis of the pubes, and proportioned in length to the space between the two openings through which the vificera descend. In such cases, however, it is absolutely necessary to have the spring stronger, than if there were only one rupture. The trusses should also be made to put on that side of the body, upon which the hernia, most difficult to retain, is situated. There are some practitioners, who give the preference to the use of two single trusses, joined together in front and behind with suitable fraps.

With respect to the application and use of trusses, the following instructions seem to merit attention.

1. A truss should never be first applied, or changed, except when the patient is in the horizontal posture, and it is known with certainty that all the contents of the rupture are completely reduced.

2. The first applications of a truss should always be made under the superintendence of the surgeon himself; and care should be taken to put on the instrument in such a manner, that the lower third of the pad will compress the neck of the hernial sac against the os pubis, while the upper portion will compress the abdominal ring. The surgeon should also make the patient acquainted with the right manner of applying the truss; the principles on which it keeps up the bowels, and affords a chance of a radical cure; the requisite cautions to be observed, &c. When a patient first begins to wear a truss, he should be particularly careful not to be guilty of any imprudent exertions, and it behoves him to observe most attentively, that the instrument does not slip from its proper situation. It will also be necessary for him to pay attention to the instrument being neither too tight, nor too loose.

3. The patient ought to be provided with at least two trusses, which should be changed every morning in bed. In order to save the truss, especially in fat persons, who perforce a great deal, it is a good plan to lay a soft piece of linen under the pad.

4. An uneasiness about the ring, which always gives rise to a suspicion that a portion of intestine, or omentum, is protruded, makes it proper to take off the truss, carefully examine the parts, and reduce them if they have defected.

5. When the skin is excoriated by the truss, the part may be cured by sprinkling upon it the powder of acetate of lead, fuller's-earth, lapis calaminaris, &c. or bathing the part with the saturnine lotion. It will also be right to protect the excoriated place with a piece of linen put under the truss.

6. When the preffure of the truss excites affections and swellings of the spermatic cord and testicle, either the thigh-frap must be relaxed, or the lower part of the pad made lefs prominent.

7. In children a very tight truss is altogether hurtful, and may be the cause of various curvatures and deformities; but the erroneous opinion, that they ought not to wear a spring truss, we have noticed in another place. See Hernia.

8. Sometimes very old large ruptures cannot be securely kept up by means of a truss, and even when the pad is extremely large, not more access is often experienced. Should they be retained, it may happen that the ill effects of the compression will be felt in the straitened state of the cavity of the abdomen, or in the speedy appearance of another hernial tumour on the opposite side. Ruptures totally irreducible, and various disorders of the testicle and cord, do not admit of the use of a fole truss.

Whoever wears a truss, should be careful to employ it day and night, without interruption, so that there may be no opportunity for the hernia to protrude again. If, under the employment of a truss, the rupture once defcends again, either a strangulation happens from the narrowness of the neck of the fac; or, at all events, the hope of a radical cure, which may have been entertained for months and years, vanishes in a moment. For experience has put it beyond all doubt, that, by the continual unremitted use of a truss, and the steady retention of the contents of the hernia, the neck of the hernial fac, and the ring, may be gradually lessened in diameter, until they are entirely closed, and a radical cure of the rupture effected. This is more frequently observed in young subjects; seldom in adults; and hardly ever in persons of advanced years. But trusses must be worn a long while, nor should the patient venture to lay aside their use till after many cautious attempts; beginning the experiment at first only in the night-time, and not making it in the day, till after a considerable period from the time when he first thinks himself safe. The longer and more attentively a truss is worn, the greater is the hope of a radical cure. Callahan, Syll. Chir. Hod. tom. ii.

Reproductions of various kinds of trusses may be seen in Plate IX. Surgical Plates. Fig. 1. exhibits a common truss. Fig. 2. the spring terminating in front in the expanded plate of metal, often termed the head of the truss. Fig. 3. represents a truss for a double rupture, with two pads affixed to one spring, and furnished with two thigh-fraps, which, in such a case, would be almost indispensable. Fig. 4. exhibits Dr. Hulme's palm truss, so named by its inventor, from its acting continually like the preffure of a hand. Its particularity consists in its springs not being placed in that part of the truss which goes round the body, but in the pad itself; where there are three spiral springs. A full description of this truss may be found in the Transactions of the Medical Society of London; but as the construction of this instrument does not make much provision against the flipping and displacement of the pad, it can afford very little security to the patient, and does not therefore appear to us to be deserving of recommendation. Fig. 5. represents a very good ordinary truss, made by Mr. Whitford, a surgeon's instrument-maker in Smithfield. Fig. 6. exhibits Mr. Salmon's patent truss, with the additional springs, all three of which together are capable of exerting a force equal to nine pounds weight. A is the spring, made so as to exert a positive force on the cushion at each end. At the front and back ends are different holes, to which the plates and cushions may be instantly shifted by the wearer, so as to admit of being correctly accommodated to the parts. B, C, the additional springs detached, either, or both, of which may be added, so as to increase the power of the truss, if requisite. These springs are simply flipped into a loose leather or other cafe. D, the front plate with its cushion. This plate will apply to either of the holes in the spring, and is kept on the ruptured part by the pin, on which it turns in all directions; so that whatever be the shape or inclination of the body, the plate adapts itself to such changes, not being confined in its direction by any power of the spring. The cushions are simple cafes filled with the foist materials. E, the back plate and cushion. F, a frap to be used, if occasion require, to prevent a forcible removal of the cushions.

Fig. 7. represents a friction of the pelvis, round which the truss is to be applied. Mr. Salmon contends, that if the spring only palled round to the point diametrically opposite that from which it commenced, it would not remain stationary, as both extremities would rest on planes inclined to their action. For a full explanation of this figure, however,
ever, we must refer to Mr. Salmon's Mechanical Analyses of Truffles.

Fig. 8. A truss for a navel-rupture, invented by the late Mr. Marrion, of Leeds. It consists of two pieces of thin elastic stuff, which surround the sides of the abdomen, and nearly meet behind. At their anterior extremity they form conjointly an oval ring, to one side of which is fastened a spring of steel, of the form represented. At the end of this spring is placed the pad, or bolster, that presses upon the hernia. By the elasticity of this spring, the hernia is repressed in every position of the body, and is thereby constantly retained within the abdomen. A piece of calico, or jean, is fastened to each side of the oval ring, having a continued loop at its edge, through which a piece of tape is put, that may be tied behind the body.

When there is a great projection of the abdomen below the navel, as is often the case in women who have borne many children, the oval ring (especially if made wide) is thrown into an oblique direction, and then does not give the pad to bear a bearing upon the hernia. To prevent this inconvenience, Mr. Marrion made the lower bow of the ring to project more than the upper one; and instead of the calico skirt surrounding the ring, he used a belt fastened to the lower bow only, as is represented in Mr. A. Cooper's work on hernia, part ii. plate 9, fig. 6.

Afterwards Mr. Marrion usually made his trusses with the lower bow of the ring only; forming this to project so as to suit the pendulous state of the abdomen. To the round end of the spring, which supports the pad, he affixed a strap, in which were contained spiral wires, for the purpose of regulating the degree of pressure upon the hernia. In a flat abdomen he inverted the position of the trusses, directing the bow to be placed above the navel.

Fig. 9. represents a new truss for a navel or ventral rupture, invented by James Egland, truss-maker at Leeds. The truss consists of two semicircular bows of steel; each of which, at its anterior extremity, is fastened by a distinct brafs hinge, placed vertically, to the outer side of an inter-\[\ldots\]mediate plate of block-\[\ldots\] This plate is somewhat concave on its inner side. The concavity is filled with a piece of blanket, which is covered with leather. This lining causes the leather covering to project a little; but in so small a degree, that when the concave side of the plate is applied to the abdomen, the pressure of the bows brings the rim of the plate, in every part of its circumference, into contact with the skin.

The posterior part of each bow, for about an inch and a half from its extremity, is turned backward, so as to form a flat surface, where it rests upon the back of the patient. To the inner side of this flattened part is sewed a soft leather cushion, lined with blanket, to prevent the patient from being hurt by the ends of the bows.

A strap of leather is sewed to the covering of the truss, near the posterior end of one bow; and a buckle is fixed, in like manner, near the end of the opposite bow, but resting upon it. By means of this strap, the patient can keep to the ends of the bows steady, without being hurt by the buckle. See Hey's Practical Observations in Surgery.

Fig. 10. shews a back view of Egland's navel truss, and of Salmon's patent inguinal truss, applied.

Fig. 11. represents a front view of the same instrument applied.

Besides trusses for ruptures, there are also trusses for another purpose, namely, supporting the scrotum in cases of hydrocele, inflamed testicle, farceocele, &c. These last are commonly called bag-trusses, or supfenoey bandages. In fact, they simply consist of a linen bag, for the reception of the scrotum, and of a girdle which goes round the body, and to which the bag-part of the truss is fastened by means of little hooks, so as to afford the requisite degree of support to the scrotum. Many persons who hunt, and are accustomed to take violent horse-exercise, make use of bag-trusses, in order to keep the scrotum from being hurt by contusions against the pummel of the saddle.

Trusses, in a Ship, a machine employed to pull a yard home to its respective mast, and retain it firmly in that position. As the truss is generally used instead of a parrel, it is rarely employed, except in flying top-gallant-fails, which are never furnished with parrels. It is no other than a ring or traveller, which encircles the mast, and has a rope fastened to its after-part, leading downward to the top or decks; by means of which the truss may be straightened or slackened at pleasure. The haliards of the top-gallant-fail being pulled through this ring, and the fall being hoisted up to its utmost extent, it is evident that the yard will be drawn close to the mast, by pulling down the truss close to the upper part of the fall. For, without the truss, the fall and its yard would be blown from the mast, so as to flying about by the action of the wind, and the rocking of the vessel; unless the yard were hoisted close up to the pulley in which the haliards run; which seldom is the case in flying top-gallant-fails, because they are usually much shallower than those which are fixed or flanging. Falconer.

Trusses, short pieces of ornamental carved wood, mostly in small ships fitted under the taffarel, in the same manner as the term-pieces.

Truss-Parrel. See Parrel.

Truss-Pendants. See Pendants.

Truss-Tackles. See Tackle.

TRUSSED, in the Manage. A horse is said to be well-trussed, in French bien gigues, when his thighs are large, and proportioned to the roundness of the croupe. On the contrary, a horse with thin thighs, that bear no proportion to the breadth of the croupe, is said to be ill-trussed.

TRUSSELS, in Rope-Making, have a back with stout pins and four legs braided together. They are used at the upper end of a rope-ground, or put under ropes of a short length, when the strands cannot be put on the flake-heads.

TRUSSING, in Falconry, is a hawk's raising any fowl or prey aloft, soaring up, and then defending with it to the ground.

TRUST. See Cestui que trust.

TRUSTEE, one who has an eflate, or money, put or trussed in his hands for the use of another. See FIDEI commissum.

TRUSTRA. See Tristra.

TRUTH, VERITAS, a term used in opposition to fallacité; and applied to propositions which anwer or accord to the nature and reality of the thing of which it is affirmed or denied.

Thus, when we say, that four is the fourth part of twice eight, that proposition is true, because agreeable to the nature of these numbers.

Truth, according to Mr. Locke, consists in the joining or separating of signs, as the things signified by them do agree or disagree one with another. Now the joining or separating of signs, is what we call making of propositions. Truth, properly, belongs only to propositions, of which there are two sorts, mental and verbal; as there are two sorts of signs commonly made use of, viz. ideas and words.

Mental propositions are those in which the ideas in our understanding are put together, or separated, by the mind perceiving or judging of their agreement or disagreement.
TRUTH

Verbal propositions are words put together or separated, in affirmative or negative sentences. So that proposition confits in joining or separating of signs; and truth confits in putting together or separating those signs, according as the things they stand for agree or disagree.

Truth, therefore, as well as knowledge, may come under the division of verbal or real; that being only verbal truth, where terms are joined according to the agreement or disagreement of the ideas they stand for, without regarding whether our ideas were such as really have, or are capable of having, any existence in nature. But it is then they contain real truth, when these signs are joined as our ideas agree; and when our ideas are such as we know are capable of having an existence in nature: which, in substances, we cannot know, but by knowing that such have existed.

Truth is the marking down in words the agreement or disagreement of ideas, as it is. Falsehood is the marking down in words the agreement or disagreement of ideas, otherwise than it is: and so far as these ideas, thus marked by founds, agree to their archetypes, so far only is the truth real.

The knowledge of this truth confits in knowing what ideas the words stand for, and the perception of the agreement or disagreement of those ideas, according as it is marked by those words.

Besides truth, taken in the strict sense before mentioned, which is also called logical truth, there are other sorts of truths: as,

TRUTH, MORAL, which confits in speaking things according to the persuasion of our own minds, or the conformity of our expressions to our thoughts, called also veracity; and, in a more general sense, comprehending also faithfulness, which is a conformity of our actions to our words. Whereas lying or falsehood, as opposed to truth, is generally a mean, selfish, or malevolent, and always an unfavourable, endeavour to deceive another, by signifying or alluring that to be truth or fact, which is known or believed to be otherwise; and by making promises, without any intention to perform them.

TRUTH, METAPHYSICAL OR TRANSCENDENTAL, which is nothing but the real existence of things conformable to the ideas which we have annexed to their names.

In which sense a clock may be said to be true, when it answers the idea or intention of the person who made it. Others will have metaphysical truth to confit in the agreement of a thing with the idea thereof in the divine understanding.

TRUTINA HERMETIS is used, among Astrologers, for an artificial method of examining and rectifying a nativity, by means of the time of conception.

TRUTINATION, formed from trutina, a pair of scales, the act of weighing or balancing a thing.

TRUPLICATE, in Ichthology, the name of a genus of fish, of the trout kind, which are distinguished from all other fish by a small fat fin, which they all have near the extremity of the back, and which has no rays or nerves. Of the fish of this genus, some live only in fresh waters, never entering the sea or salt rivers; others frequent both the fresh and salt waters, and are therefore called anadromi or catadromi. These leave the fresh waters while young, and go into the salt rivers to feed and grow, and again return into the fresh rivers at the time of their full growth and spawning, that their offspring may have the same advantages themselves have had, of being hatched into life in fresh water.

TRUXILLO, in Geography, a city of South America, in the viceroyalty of Peru, and fee of a bishop. It was built in the year 1555, by Don Francisco Pizarro, in the valley of Chimo. Its site is pleasant, notwithstanding the sandiness of the soil, the general inconvenience of all the towns in the valleys. It is surrounded with a brick wall, and from its circuit may be clasped among cities of the third order. It stands on a small river, about half a league from the sea: two leagues to the northward is the port of "Guanchaco," the channel of its maritime commerce. The houses make a creditable appearance. The generality are of bricks, with flatly balconies, and superb porticoes; but the others are of barnware. Both, however, are low, on account of the frequent earthquakes, and few of them have so much as one story. The corregidor of the whole department resides in this city, and also a bishop, whose diocese begins at Tumbes; with a chapter, consisting of three dignitaries, namely, the dean, archdeacon, and chanter, with four canons, and two prebendaries. Here is an office of revenue, assisted by an accountant and treasurer, one of which resides at Lambayeque, several convents, a college, and an hospital. The inhabitants consist of Spaniards, Indians, and all the other calls. Among the first are several rich and distinguished families. The women in their drets and costumes follow nearly those of Lima. About a league from the city is a river, the waters of which are conveyed by various canals through this delightful country. The diocese comprehends eight jurisdictions, viz. Truxillo, Sama, Pura, Cayamaca, Chachapayas, Ichala and Chillos, Pataz or Caxamarqulla, and Juan de Bracamaros; the last is situated in the audience of Quito; the rest in the viceroyalty of Peru. The jurisdiction of Truxillo is situated on the coast of the Pacific ocean, and extends twenty leagues in length, and as much towards the interior part of the country, compassed throughont of beautiful valleys. In this climate there is a sensible difference between winter and summer; the former being attended with cold, and the latter with excessive heat. The country of this whole valley is extremely fruitful, abounding with figar-canes, maize, fruits, and garden vegetables, as also with vine and olive yards. The parts nearest the mountains produce wheat, barley, and other grain; so that the inhabitants enjoy not only a plenty of all kinds of provisions, but likewise make considerable exports to Panama, especially of wheat and figars. This remarkable fertility has been improved to the great embellishment of the country; so that the city is surrounded by several groves and delightful walks of trees. The gardens also are well cultivated.

The truttaceous fish are divided into two orders, those which have, and those which have no teeth. Of the edentulous kind, or such as have no teeth, are the lavaretus, ferra, thymallus, oxyrinchus, and albula; and of the toothed kind, are the falmo, umbra, trutta, carpio, &c. In connection, the truttaceous fish have all apophyses to the pyrurus, and are all a high-tailed and fine fish for the table. Ray's Ichthology, p. 182.
TRY

cultivated, and make a very beautiful appearance, which, with a continual serene sky, prove not less agreeable to travellers than to the inhabitants. The city is situated 480 miles S. of Quito. S. lat. 8° 6'. W. long. 79° 20'.

The progress of this city to splendour and opulence was very rapid; but in the midst of its career it was attacked and defeated by the buccaneer Francis Grammont, in the year 1678. The consequence of his invasion was a almost a temporary depopulation. However, the fulblury of the air and the fertility of the soil have drawn thither inhabitants sufficient to make their number amount to 7600 persons. The land about it produces sugar, cacao, indigo, coffee, and in general all the productions of the torrid and some of the temperate zones. Wheat is obtained here of an excellent quality, and in abundance. They also breed sheep and goats: their mutton is large and good; their cheese much commended; and of the wool they fabricate goods, of certain and profitable fale. The women are employed in making sweetmeats, which have an extensive circulation. The commercial articles of Truxillo are conveyed to Maracaibo by the lake; but their most common intercourse is with Carora, where they send their goat and sheep-skins to be dressed. The air enjoyed by the inhabitants of Truxillo is pure; but their waters, though clear and light, are impregnated with metallic particles. The spot occupied by the city lies between two mountains, fo as to give it the shape of a coffin. Here is a monastery of Franciscans, and also another of Dominicans. The nuns of Truxillo employ themselves in making delicate articles of bark, which have a ready sale.

TRUXILLO, a sea-port town of Mexico, in the province of Honduras, situated on a hill, near the sea; frequently ravaged by the English and the Dutch, and at present much decayed. N. lat. 15° 45'. W. long. 86° 40'.

TRUXILLO, or Nuestra Senora de la Paz, a town of South America, in the province of Venezuela; 120 miles S. of lake Maracaibo. N. lat. 8° 45'. W. long. 69° 34'.

TRUXTON, a post-township of New York, in the N.E. corner of Cortland county, 424 miles W. of Albany; bounded N. by Fabius, on Onondaga county, E. by Madison county, S. by Solon, and W. by Preble: its extent is 10 miles E. and W., and 5 miles N. and S., comprising the S. half of the township of Fabius, in the military tract. It resembles Fabius in the general character of surface, soil, timber, &c., and is watered only by branches of the Troughingoa that rise in that town. The soil is good, the agriculture productive, and the township improving. In 1810 the population was 11,2, the senatorial electors 129, and the taxable property assessed at 4,673 dollars. The settlements commenced in 1800. Truxton village is agreeably situated, and has about twenty houses.

TRUZZA, or Truizzo, a town of Tunis, with a populous spring. Little of the town exists but ruins; 84 miles S.S.W. of Tunis.

TRY, Try, in Sea Language. See TRYING.

TRYAL. See TRIAL.

TRYBERG, in Geography. See TRIBERG.

TRYBION, a word used by the old medical writers, to express the pot or ditch in which the medicines used in fumigations were placed at the time of use.

TRYCHNUS, in Botany, the name as ftychonus, the name of nightshade.

TRYDEFRIN, in Geography, a township of Pennsylvania, in the county of Chelten, containing 1253 inhabitants.

TRYGGEVELDE, a town of Denmark, in the island of Zealand; 4 miles W. of Store Hedingen.

TRYGUM, in Ichthyology, the Greek name given byelian, Atheneus, and Appian, to the fish which we call the paffinae marina, or fire-faire. Artifole and some others write it trigum.

TRYING, in Pharmacy, the purifying of fat substances by means of melting, and separating them from their membranes, &c. See Suet.

In the College Dispensatory, the method laid down for the purifying of land, fuel, &c. was this: melt them at a gentle fire, with the addition of a little water intermixed, and, when melted, strain them from the membranes. The addition of water in this keeps the fat from burning and becoming black, which it would otherwise do; for the water not being capable of receiving any greater degree of heat than that of boiling, will keep the bottom of the vessel from growing too hot, much better than the nicest management of the fire could do.

TRYING, in Sea Language, denotes the situation in which a ship lies nearly in the trough, or hollow, of the sea, in a tempest, particularly when it blows contrary to her course. In trying, as well as in scudding, the fails are always reduced in proportion to the increase of the storm. Thus, in the former state, the ship may lie by the wind under a whole main-fail, a whole fore-fail, or a whole mizen; or under any of those fails, when diminished by the reef or balance. As the least possible quantity of fail used in scudding is the gooie-wings of the fore-fail, so, in trying, the smalllest portion is generally the mizen-flay-fail, or main-flay-fail; and in either state, if the storm be excessive, she may lie with all the fails furled, or, according to the sea-phrase, under bare poles.

The intent of spreading a fail at this time is to keep the ship more steady, and, by pressing her fide down in the water, to prevent her from rolling violently; and also to turn her bow towards the direction of the wind, so that the f洛克 of the waves may fall more obliquely on her flank than when she lies along the trough of the sea. While she remains in this situation, the helm is fastened close to the lee-fide, or, in the sea language, bord-a-lae, to prevent her, as much as possible, from falling-off. But as the ship is not then kept in equilibrio by the effort of her fails, which at other times counterbalance each other at the head and stern, she is moved by a fluid but continual vibration, which turns her head alternately to windward and leeward, forming an angle of three or four points in the interval. The part where the flops, in approaching the direction of the wind, is called her coming-to, and the contrary excess of the angle to leeward is termed her falling-off. Thus, suppose the wind northerly, and a ship trying with her board-side to windward: if, in turning her head towards the source of the wind, she arrives at N.W. or N. 35° W. and then declines to the leeward as far as W. 45° S. or S. 45° W. the former will be called her coming-to, and the latter her falling-off. In this position she advances very little, according to the line of her length, but is driven considerably to leeward. Falconer.

TRYLISIA, in Geography, a town of Ruffian Poland; 10 miles E.N.E. of Zytoriens.

TRYON, a county of the state of New York.

TRYON MOUNTAINS, mountains of North Carolina, west of Salisbury, bordering on Tennessee.

TRYPETHELIUM, in Botany, from τρύς, a perforation, and ἄνω, a nipple, on account of the mammiliary orifices of the warts containing the receptacles; a genus of the great family of lichenet. (See that article.)—Achar. Lichenogr.
TSA


Eff. 2.6. Crust somewhat cartilaginous, flat, uniform, fixed. Warts of the substance of the crust, coloured, prominent. Receptacles several, concealed in the substance of each wort, of a thick, black, simple texture, the orifice nipple-shaped, projecting as far as the surface of the wort, the globular cellular nucleus being altogether internal.

Professor Acharius defines eight species, all found on the banks of different tropical trees. They are nearly allied to his Theolotrema. See that article.

TRYPHALIA, in Ancient Geography, a maritime country of the Peloponnesus, between Messenia and the Elide, according to Polybius.

TRYPHERA, Τρυφέρα, in Pharmacy, a denomination given to divers medicines, especially of the opiate kind.

The great tryphera is composed of opium, cinnamon, cloves, and several other ingredients; it is used to fortify the stomach, to stop fluxes, and is good for some diseases of the womb.

The word is formed from the Greek τρυφέρα, delicate, on account of their gentle and pleasant operation, or, according to others, because they make those who use them reft.

The Saracen tryphera, and Persian tryphera, thus called, because first introduced, the one by the Saracens, and the other by the Persians, were both of them gentle purgatives.

TRYPHIDORUS, in Biography, a Greek poet, was a native of Egypt, and commonly referred to the reign of the emperor Anattius, in the commencement of the fifth century. Of his history little is known; but he was dennominated a Grammarian, and wrote many works, the titles of which are given by Suidas. Of these, none are extant besides his poem on the destruction of Troy, τάξις Ἀλκιβίδας, in about 700 lines, without any discriminating merit besides its being a relic of Greek literature. It was first printed by Aldus, and has passed through subsequent editions by Merrick, Oxon. 1741; Bandini, Florent. 1759; and Northmore, Oxon. 1791, which are those the most esteemed. Volusius. Moreri. Gen. Biog.

TRYSTS, CATTLE, a term applied to fairs for them in some of the northern parts of the island.

TRYSUNDA, in Geography, a small island on the W. side of the gulf of Bothnia. N. lat. 63° 9'. E. long. 18° 35'.

TRYVET, a village of Ireland, in the county of Meath. This place was rebuilt by Hugh de Lacy, and peopled by a colony of English; after which it became a consider able town, but is now fallen to decay; 8 miles S.E. of Navan.

TSABA, a town of Asiatic Turkey, in Natolia; 10 miles E. of Bohl.

TSA-CHOUI, a town of Corea; 43 miles S.S.E. of Koang-techeou.

TSAKATHURN. See CUSAKATHURN.

TSAKTELU, a town of Asiatick Turkey, in Caramania; 28 miles N.N.E. of Akchief.

TSALGO, a town of Georgia, in the province of Carduel; 50 miles S.W. of Telif.

TSAL-HASSAR, a town of Arabia, in the province of Asijadr; 45 miles N.W. of Cathem.

TSANG, a city of China, of the second rank, in Peche-li; 102 miles S. of Peking. N. lat. 38° 21'. E. long. 116° 84'.

TSANG-CHEIN, a town of Corea, near the Sea; 35 miles S.S.W. of Han-techeou.

Vol. XXXVI.

TSC

TSANPOU. See Sanpo.

TSANTSE-AGHISHI, a town of Asiatic Turkey, in Natolia; 12 miles N.W. of Eregri.

TSAO, a city of China, of the second rank, in Canton; 72 miles W.S.W. of Yeng-techeou. N. lat. 35° 22'. E. long. 115° 10'.

TSAO-SU, a small island near the coast of China. N. lat. 25° 22'. E. long. 119° 42'.

TSAO-TCHANG, a town of Corea; 20 miles N. of Han-techeou.

TSAPHARI, in the Materia Medica of the Ancients, a name given by some to the cadmia, called by Dioscorides placitis, and by others of the Greek writers, zonitis and onychitis. It was a flat kind, forming a fort of coat or crust on the walls or sides of the furnace; hence it had the name placitis, or crustaceous; and it was called onychitis and zonitis, because, when broken transversely, it appeared made up of several succedaneous plates, which had the appearance of so many belts or zones. Serapion tells us, that this and the botryoida cadmia were dug out of the mines; that is, that they were natural productions; but this is erroneous, and contrary to all the accounts of the ancients.

TSASMA, in Geography, a town of Croatia; 8 miles E. of Ivanitz.

TSATSORKEN, a town of Thibet; 501 miles E.S.E. of Laffa.

TSCHAGATAY, or Dschagatai, a name given to the Mongolian state, which was ascribed to one of the sons of Tschingis-khan, His called after the name of its founder, to whom his father ascribed the Great and Laszchiharkh, Turfan, the country of the figures, and part of the present Kalmuckey.

TSCHA-HAFFER, a town of Arabia Deferta; 80 miles W. of Cathem.

TSCHALMA-CALAB, a town of Persia, in Adiribetzan; 60 miles S.E. of Tauris.

TSCHARSHEBEB, a town of Asiatic Turkey, in Natolia, on the Meinder; 20 miles N. of Degnaizels.

TSCHASCHWITZ, a town of Silezia, in the principality of Neiff; 4 miles W. of Neife.

TSCHASLAW. See Czaslaw.

TSCHAZLOWITZ, a town of Bohemia, in the circle of Konigingratz; 14 miles E.S.E. of Konigingratz.

TSCHAVAT. See Javat.

TSCHEAHDORF, a town of Silezia, in the principality of Neife; 9 miles N.E. of Patchkau.

TSCHEKENAGAR, a town of Asiatic Turkey, in Caramania; 50 miles N.E. of Cogni.

TSCHELATSCH, a town of Austrian Poland, in Galicia; 28 miles N. of Cracow.

TSCHENGA, a town of Bulgaria, near the Daphne; 50 miles W.S.W. of Varna.

TSCHESTOCKOWA, a town of Austrian Poland, in Galicia; 46 miles N.W. of Cracow.

TSCHEREMISSES, or Tschermess, a tribe of Finns, who dwell in the governments of Viatka, Kazan, Simbirsk, and Ufa, on both shores of the Volga, especially the left. They call themselves Mari, i. e. men. Although their language be mixed with Tartarian and Russian words, it is easily distinguishable as a Finnish dialect. The Supreme Being they call Yuma. In the time of the Tartars they were subject to them, and dwelt more fartherly, between the Volga and the Don; but at the downfall of the Tartarian dominion, they fell to the Russian empire, and even in this state they long retained their own khan, which, however, vanished upon the
the extinction of the princely race. They were formerly a pastoral people, but under the Russian government they are gradually become husbandmen. The present amount of them is not known; but they have been estimated at 25,000.

TSCHERIKOV. See Tcherikov.

Tscherekov's island, an island in the North Pacific ocean, so called by Capt. Vancouver, after the companion of Bering. In the point of view in which Capt. Vancouver saw the twelfth, southern, and eastern sides of this island, it appeared to form a somewhat irregular four-sided figure, about ten leagues in circuit; having from its western part, which is low and flat, and which had the appearance of being insular, a remarkable high, flat, square rock, lying in a direction S. 60° W. at a distance of two miles, between which and the island is a ledge of smaller rocks. The centre of the island appeared to be in N. lat. 52° 49'. E. long. 203° 4'.

TSCHERKASK. See Tcherkask.

TSCHERKASSIANS. See Tcherkasses and Circassians.

TSCHERNENBL. See Zernembl.

TSCHERNOYAR. See Tcher kho yar.

TSCHERSK, or Tcherisko. See Czersko.

TSCHESCHENIANS, or Mischenhians, a tribe of vaffals to Russia, living in the eastern part of the great Kabardin, who in time of war can raise 5000 horsemen.

TSCHESME', a small town of Alia Minor, situated almost opposite to the island of Scio, at the head of a spacious road, to which art has no occasion to add, in order to make it a good harbour. A citadel, founded by the Genoese, fortified by which, the republic of Scio, keepng to the sea-shore, and seems intended to secure from all insult both the town and the harbour. Tschefme is built on the ruins of Cyllus. This road is famous for the victory which the Roman fleet gained there over that of Antiochus, and also for the burning and total destruction of the Turkish squadron by the Russians in 1770. Geographers place at the head of a bay, or three leagues to the N. of Tschefme, the ancient Erythra, celebrated for the oracles of the Sibyl. The territory of Tschefme furnishes grain and fruit in abundance: a little oil and a great many raisins are also produced here. It is from this harbour that the island of Scio draws a great part of its subsistence, and by means of it frequently keeps up an intercourse with Smyrna.

TSCHETCHE, the name of a colony of strangers and Christians, who are excluded from the world in a sort neglected part of the wilds of Caucasus, so called in the language of the country. These poor people are said to lead lives of the most exemplary piety, and to exhibit a primeval simplicity of manners. They are totally ignorant of their origin, any far nearer than that they are strangers, and their being considered as such by the scattered neighbouring nations. From an affinity in their language, and some other circumstances, they are supposed to be descended from a colony of Bohemians, who, flying from religious persecution in their own country towards the close of the fifteenth century, found at length a refuge from oppression in the retreat of mankind which these remote deferts afforded.

TSCHIGRI, a town of Russia, in the government of Kurilk; 48 miles E.N.E. of Kurilk.

TSCHILLA, a town of Boemia, in the circle of Rakonitza; 8 miles S.W. of Rakonitza.

TSCHIRNE, a town of Silicia, in the principality of Glogau; 20 miles E. of Gros Glogau.—Alfo, a river of Silicia, which runs into the Borob, two miles below Sagan.

TSCHIRNHAUSEN, Ehrenfried Walter von, in Biography, an ingenious mathematician, was a descendant of a noble Bohemian family, and born at Kifflingwald, in Upper Lusatia, in 1651. Having studied for some time at the university of Leyden, directing his particular attention to mathematics and philosophy, he entered into the Dutch army in 1672, and for the purpose of further improvement visited France, Sicily, Italy, and Malta. He also established three glas-houses in Saxony, with a view to the improvement of the science of optics, and having flewed how porcelain might be made from an earth found in that country, he may be regarded as the founder of the Dresden porcelain manufactory. As to his claims on the invention of cauliic curves, we refer to the article Caufic Curve. His account of them was communicated to the Academy of Sciences at Paris in 1682. See also the fame Memoirs for 1703. For the construction and powers of his burning-glas, constructed about the year 1687, we refer to the article Burning-glafs. Headles of the fame which he so justly acquired, Tschirnhausen took delight in encouraging the researches of others, who were engaged in pursuits similar to his own, and was at considerable expense in printing works of public utility. He died, highly esteemed and much regretted, in the month of September 1708. He furnished the Leipfe Transactions with many articles; and also the Memoirs of the Academy of Sciences with the following: v. "Observations on Burning-glas of three or four feet Diameter," in the vol. for 1699; "Observations on the Glas of a Telescope con- structed in Saxony, and the thirty-second feet focal distance," 1700; "On the Radius of Curvatures, and finding the Tangents, Quadratures, and Rectifications of many Curves," 1701; "On the Tangents of Mechanical Curves," 1702; and "On a Method of Quadratures." The only work published separately was his "Medicina Mentis," referring Malebranche's "Recherche de la Verité," but more extensive; first published in 1687, and again with improvements in 1695. Montucla, Hist. des Mathem. Hutton's Math. Dict.

TSCHIRNHUSIANA Quadratrix. See Quadratrix Tefirhauhiana.

TSCHOPA, in Geography, a river of Saxony, which rises near Wejental, on the borders of Bohemia, and runs into the Mulda, between Dobcin and Leifing.

TSCHOPA, or Zhepopou, a town of Saxony, in the circle of Erzegberg, celebrated for its blue manufacture; 7 miles S.E. of Chemnitz. N. lat. 56° 4'. E. long. 13° 2'.

TSCHUDI, Eundus, in Biography, an eminent Swiss historian, was descended from a noble family, and born at Glarus in 1505. After completing his school education, he went to Basle, and accompanied his preceptor Glareanus to France, with a view to further improvement. Upon his return to his native place, he was employed, in 1528, on a mission respecting the Reformation, in which he conducted himself to the satisfaction of both Reformers and Catholics; and in the following year was chosen chief magistrate of Sargans. By his discharge of the duties of this office, he gained increasing reputation, and more extended truits of a similar kind. His great object was to enlarge his acquaintance with the Helvetic history; nor did he cease to pursue it, even in the military service of France, or in any of the honourable stations which he was appointed to occupy. Towards the close of his life he was severely afflicted with the stone, but death terminated his pains and labours in the year 1572, and 69th year of his age. His principal works were "A Description of the ancient Rhaetia," published at Basle in 1538; the " Helvetic Chronicle," commencing with the
The page contains text in English, discussing various geographical and cultural topics. The text seems to be a part of a larger work, possibly a historical or geographical text, discussing regions, peoples, and features of the world. The text refers to places such as Siberia, Turkey, and several others, and includes discussions on languages, agriculture, and natural phenomena. The text is too complex to transcribe accurately without context and is likely part of a larger work on geography or history.
TSI

TSI, a city of China, of the second rank, in Ho-nan; 242 miles S. of Peking. N. lat. 34° 30'. E. long. 112° 24'.

TSIA, in Botany, a name taken from the Japanese, and used by some authors for the tea-tree.

TSJAKELA, H. M.—Ficus Malabarica, femel in anno frutifera, frutti minima, a species of fig-tree growing in Malabar. Of the bark of this tree they make figs for their bows, and prepare a red colour for dyeing the Cambavan cloths.

TSIAM PANGAM, a name used by some authors for the tree whole wood is the log-wood, used in dyeing, and in medicine.

TSIAMAJA, in Geography, a town of Laos; which see.

TSIAMPA. See CHAMPA.

TSIANA EUA, in the Medita Medica, a name given by some authors to the colts root.

TSIAO, in Geography, a city of China, of the second rank, on the south coast of the island of Hai-nan; 125 miles S.S.W. of Kiong-techeou. N. lat. 18° 20'. E. long. 108° 25'.—Alfo, a town on the west coast of the island of Morty. N. lat. 2° 5'. E. long. 128° 18'.—Alfo, a lake of China, in Kiang-nan, about 60 miles in circumference; 42 miles S.W. of Nang-king.

TSIAO-TING-CHAN, a town of Corea; 50 miles E.N.E. of Koang-techeou.

TSIAO-TONG, a town of Corea, on an island of the same name. N. lat. 37° 48'. E. long. 124° 14'.—Alfo, an island in the Hoang-hai, or Yellow sea, near the coast of Corea, about 35 miles in circumference. N. lat. 37° 44'. E. long. 124° 54'.

TSIASSEM, a kingdom of the island of Java, on the north coast, E. of Caravang.

TSIBBA, a town of Japan, in the island of Niphon; 30 miles E.S.E. of Jedo.

TSI-CHU, in Botany, the name of a Chinese tree, which furnishes the liquor of which they make their celebrated varnish.

TSIEN, in Commerce, a weight in China. The Chinese weigh gold and silver by the gin or catty, of 16 lyangs or taels; and the lyang is subdivided into 10 tenins or maces, 100 fenins or candarines, and 100 lis or cash. The gin is the Chinese denomination for this weight, and the catty that of the European. See TALE.

TSIEN-OUYEY, in Geography, a town of Chinese Tartary; 40 miles S.W. of Ning-yuen.

TSIERIDON. See CHERIBON.

TSIJA, a town of Tibet; 48 miles W. of Contchoulong.

TSIKUMMA, a town of Japan, in the island of Niphon; 88 miles W. of Meaco.

TSILLI, a town of Corea; 35 miles W. of Sing.

TSILKANI, a town of the principality of Georgia, in the province of Carduel; 20 miles N.W. of Telis.

TSILON-PALHASIN, a town of Chinese Tartary, in the country of the Mongules; 13 miles S. of Oulan.

TSIM-YUEN, a town of Corea; 650 miles E.N.E. of Peking. N. lat. 42° 28'. E. long. 120° 54'.

TSIN, a city of China, of the second rank, in Chen-fi; 620 miles S.W. of Peking. N. lat. 34° 35'. E. long. 105° 24'.—Alfo, a city of China, of the second rank, in Hou-quang; 645 miles S.S.W. of Peking. N. lat. 26° 36'. E. long. 109° 4'.

TSIN, or Tsin, a town of Corea; 188 miles S.S.E. of King-ki-tao. N. lat. 34° 52'. E. long. 127° 44'.

TSIN, in Natural History, the name given by the Chinese to a stone which they make great use of in their manufacture of porcelain ware. It is of a deep blue colour, much resembling Roman vitriol in appearance, and is found in lead-mines, and supposed to contain some particles of lead; its effects being the fame in the porcelain manufacture as those of cerufs, or white lead, in making the other colours penetrate into the substance of the vefils. The deep violet colour that we fee so beautiful on the china-ware, is usually made with this stone. They find it about Canton and Peking; but the latter place affords the belt, and it sells at greatly the best price.

The painters in enamel melt this stone in their way, and use it very much; they form many beautiful works, by laying it upon fiver; but it is apt to come off in time. When the tfin is used in the porcelain manufacture, it is only used to the vases that pass a second baking, and are intended as the best kinds.

The tfin is prepared by only heating it to powder, not roasting it in the common way. They mix the powder with large quantities of water, and airing it together, they let it subside a little, to separate any earthly or extraneous matter that might be among it. They then let the powder subfide. The water which is thrown away has no colour from this matter, and the powder itself is not of that fine blue it was in the lump, but of a pale afh-colour; but this recovers all its beauty when it is laid on the china and baked. The settlement taken from the water is dried and preferred in powder, and when it is to be used, they only mix it up with gum-water, or a solution of glue, and lay it on with a pencil. Obscur. fur les Colories de Pafie.

TSI-NAN, in Geography. See TCI-NAN.

TSINCHAN, a town of Corea; 13 miles N.W. of Sing.

TSIN-CHOUI, a river of China, which runs into the Yuen, near Meyang.

TSINEN, a town of Asiatic Turkey, in Natoilia; 16 miles W.N.W. of Mogia.

TSING, a city of China, of the second rank, in Chan-fi; 267 miles S.S.W. of Peking. N. lat. 36° 42'. E. long. 112° 24'.—Alfo, a lake of China, in Kiang-nan, 22 miles in circumference; 45 miles N. of Hoai-ning.

TSING-HING, a city of China, of the second rank, in Yun-nan; 1162 miles S.S.W. of Peking. N. lat. 24° 47'. E. long. 102° 30'.

TSING-KIANG, a city of China, in Kiang-nan, on the Yang-tse river; 50 miles S.E. of Yang-tcheou.

TSING-LAN-OUEI, a town of China, in Hou-quang, near the source of the river Yuen; 25 miles S.W. of Hoang.

TSIN-KIEN, a river of China, which runs into the Hoang; 12 miles E.S.E. of Yen-tchan.

TSIN-NING, a city of China, of the second rank, in Chen-fi; 585 miles W.S.W. of Peking. N. lat. 35° 30'. E. long. 105° 25'.

TSINO, a town of Japan, in the island of Awaifi; 10 miles N. of Awaifi.

TSINRAMA, a town on the west coast of the island of Celebes. S. lat. 5° 10'. E. long. 119° 14'.

TSIN-TCHUEN, a town of Corea; 40 miles S.E. of Hoang-tcheou.

TSIN-YANG, a river of China, which rises near Tei-hia, in Chan-tong, and runs into the Eastern sea, near Fou-cha.

TSIN-YUEN-OUEI, a forftres of China, in Chen-fi, near the great wall, on the river Hoang; 75 miles N. of Limgtao.
TSISAGATA, a town of Japan, in the island of Nippon; 110 miles W. of Macao.

TSISIR, a town of Thibet, now in ruins. N. lat. 34° 14'. E. long. 60° 19'.

TSIT, a lake of Thibet, 45 miles in circumference. N. lat. 33° 32'. E. long. 95° 39'.

TITICHICHAR. See TITCICAR-HOTUN.

TSURAC, a river of Natolia, which runs into the Meander, at Telsarhebes.

Tso, a city of China, of the second rank, in Pe-tche-li; 22 miles S.S.W. of Peking. N. lat. 39° 32'. E. long. 115° 39'.—Allo, a city of China, of the second rank, in Quang-fi; 930 miles S. of Peking. N. lat. 22° 42'. E. long. 106° 49'.

TSO-CHOU, a town of Corea; 55 miles S.E. of Kang-tdcheou.

TSUKAMA, a town of Japan, in the island of Nippon; 170 miles W. of Macao.

TSOL-ABAD, a town of Asiatic Turkey, in Carmania; 32 miles S.W. of Akkhehr.

TSONDUE, a town of Thibet; 7 miles W. of Painom-Jeung.

TSONG-HE, a town of Corea; 10 miles N. of Hoang-tdcheou.

TSONG-KING, a city of China, of the second rank, in Set-tcheuen; 857 miles S.W. of Peking. N. lat. 30° 38'. E. long. 103° 23'.

TSONG-MING, a town of China, in the island so called. N. lat. 31° 45'. E. long. 120° 51'.

TSONG-MING, or Tjung-ming, an island near the coast of China, in the Eastern sea, at the mouth of the Yang-tse river, belonging to the province of Kiang-nan, about 50 miles in length, and 10 in breadth. This island was formerly a place of banishment for criminals, to whom some poor Chinese families returned, and they divided the lands amongst them; but not being able to clear all the land they had appropriated to themselves, called other families from off the continent to their assistance, and yielded to them for ever a part of the lands, on condition that they should pay annually, in divers goods, a rent proportional to their harvest. The country is divided by an infinite number of canals, that have high banks to defend it from inundations, for the land is level, having no hills; the air is healthful and temperate, and the country agreeable. Here are large towns scattered about the island at convenient distances, wherein is a great number of shops, well furnished with all manner of necessaries and conveniences of life; and, dispersed between each town, there are as many houses about the country as there are families employed in tillage. The highways are very narrow, and are bordered with little shops that sold refreshment to travellers; and, indeed, one would imagine the whole island to be one exceeding large village. Here are no wild fowl, but great numbers of large geese, ducks, hens, hogs, and buffaloes, but these latter are used only for tillage. The land is not alike throughout the island, the produce of it being very different: that towards the north is not cultivated, but the reeds which grow here naturally produce a considerable revenue; as there are no trees in the whole island, they use part of these reeds to build houset in the country; the other part serves to burn, and supplies fuel not only for the whole island, but also for some parts of the neighbouring continent. The second fort of land is that which extends from the first quite to the sea on the south side; this produces two crops every year; one of grain, which is generally in the month of May, the other of rice, or cotton; of rice, in September; of cotton, a little later:

their grain is rice, wheat, barley, and a sort of bearded corn, which, though it resemble wheat, is nevertheless of a different nature. There is a third fort of land, which, though it appear barren, produces a greater revenue than all the rest; it consists of a whitish earth, found in several parts of the north side of the island, from whence they get much a great quantity of salt, that it supplies not only the island, but part of the continent. In this island there is a number of mandarins, and the governor is one of those called literati." He alone administers justice, receives the tribute paid by every family to the emperor, gives passports to ships, and passes sentence of death on criminals. When the people have occasion for rain, or fine weather, this mandarin proclaims a general fast; butchers and inn-keepers are then forbid to sell any thing, under the severest penalties; they however take care to get rid of their provisions, by paying some money privately to the officers of the tribunal, whose business is to enforce the observance of this order. The mandarin afterwards walks in procession, accompanied by his subalterns, to the temple of the idol whom they intend to invoke; he kindles on the altar two or three small aromatic twigs; they then all sit down; to pass the time, they drink tea, smoke, and converse an hour or two; after which they retire. This is what they call begging for rain or fine weather.

Father Jacquemin relates, that in his time the viceroy of one of the provinces, becoming impatient because rain had not been granted to his repeated requests, sent an inferior mandarin to tell the idol, from him, that if it did not rain before a certain day he would drive him from the city, and cause his temple to be razed. No rain having fallen before the day mentioned, the viceroy, in a great passion, forbade the people to carry, according to custom, their offerings to the idol, and ordered the temple to be shut, and the gates sealed up, which was immediately executed. N. lat. 31° 38'. E. long. 120° 54'.

TSONG-SIO, a town of the kingdom of Corea; 27 miles S.E. of Hoang-tdcheou.

TSO-PING-ING, a town of Corea; 30 miles S.E. of Kaoang.

TSOR, or Son, or Sur, or Sor, a town on the east coast of Arabia, in the province of Oman; 22 miles S.E. of Kalhat. N. lat. 23° 50'.

TSORLI, or Ciorli, or Teweri, a town of European Turkey, in Romania; 15 miles N.E. of Rodosto.

TSOTSANG, a river of China, which runs into the Hoang, near Honi-king.

TSUBSUKI, a town of Japan, in the island of Nippon; 65 miles N.N.W. of Macao.

TUEN, a city of China, of the second rank, in Quang-fi; 912 miles S.S.W. of Peking. N. lat. 25° 56'. E. long. 110° 44'.

TUEN-TCHEOU, a city of the first class in China, in the province of Foc-hien, and reckoned one of the most beautiful cities in China, on account of its situation, extent, trade, triumphal arches, temples, and its well-paved streets. It has in its district seven cities of the third class. In its neighbourhood is a bridge remarkable for its extraordinary size, and the singularity of its construction. It was built at the expence of one governor. It is wholly built of the fame kind of blackish stone, without arches; but it has above 300 large stone pillars, which terminate on each side in an acute angle, the more easily to break the violence of the current. Five fenes of equal size, laid transversely from one pillar to another, form the breadth of the bridge; of these there are 1100, all of the
fame sixe and figure. On each side there are buttresses or props, constructed of the same kind of stone, on the tops of which are placed lions on pedestals, and other similar ornaments. This is merely one part of the work,—that which is between the small city of Lo-yang and the castle built upon the bridge: for beyond the castle there is another part, equally stupendous with the first.

TSUGA, a town of Japan, in the island of Niphon; 45 miles W.N.W. of Nambu.

TSUGARA, a town of Japan, in the island of Niphon; 62 miles N. of Jedo.

TSUI-TSANG, a town of Corea; 40 miles W.S.W. of Sing.

TSUKU-KI, a town of Japan, in the island of Niphon; 36 miles N.N.E. of Jedo.

TSUNTNI-TZ, a town of Croatia; 16 miles W. of Damianovitz.

TSUN-Y, a city of China, of the first rank, in Szechuen; 890 miles S.W. of Peking. N. lat. 27° 38'. E. long. 106° 33'.

TSUR. See Tsur.

TUA, in Ancient Geography, an estuary on the south-eastern side of the Isle of Albion, between the estuary Vayg, or Firth of Tayne in Sunderland, and the mouth of the river Celnas, or the Spay, in the shire of Elgin. The Tua was therefore Cromarty, or Murray Firth.

TUA, in Geography, a river of Portugal, which runs into the Duero, 15 miles N.W. of St. Joao de Pequeira.

TUABO, a town of Africa, in the kingdom of Jaen, on the side of the Senegal. N. lat. 14° 56'. W. long. 10° 28'.

TUACA, a town of Africa; 10 miles S. of Mombaça.

TUA, a small island in the Red Sea, about 12 miles from the coast of Arabia. N. lat. 5° 58'. E. long. 41° 58'.

TUAH, a port-town of the county of Galway, Ireland, which is represented in the "New Traveller's Guide for Ireland," as "a large, populous, well-built town," but which Dr. Beaufort calls, though an archiepiscopal see, a very poor city. It may have been improved since the publication of Dr. Beaufort's work, but the other account must be received with caution, especially when it speaks of "by-lanes and alleys, and the Suburb, filled with an industrious populace and working mechanics." It may, however, have a considerable retail trade, and may have derived great advantage from the introduction of the linen manufacture into its neighbourhood. The archbishop's palace is a spacious, venerable structure. The cathedral is a neat, but not extensive, edifice, which serves also for the paroch-church. Tuan lost its privilege of being represented in parliament at the Union. It is 93 miles W. from Dublin, and 16 miles N. by E. from Galway.

TUAH, an archiepiscopal see in Ireland, being the lowest in dignity of the four, and having the smallest jurisdiction; the number of benefices in this province being only 87, whilst in Armagh there are 415, in Dublin 252, and in Cahir 362. The fee of Tuan contains the greatest number of acres of any fee in Ireland, extending over a great part of the counties of Galway and Mayo, and including a part of Roscommon; yet such is the want of cultivation, and the poverty of the country, that it was found necessary to unite the bishopric of Ardgagh in the province of Armagh, to enable the archbishop to support the dignity of his station. The number of parishes is 89, forming 23 benefices, and having 24 churches. The chapter consists of a dean, a provost, an archdeacon, and eight prebendaries. The suffragan bishoprics are those of Clonfert, Elphin, and Killaloe.

TUAPE, a town of New Navarre; 160 miles S. of Cala Grande.

TUARIK, a people of Africa. The west and south of Fezzan, says Mr. Horneman, is inhabited by the Tuariik, a mighty people, who border south-west on Bornou, south on Bornou, Soudan, and Tombutcoo, eastward on the country of the Tibbo and Fezzan, northward on part of Fezzan and the Arabs who live behind the regions of Tripoli, Tunis, and Algiers, and westward on the great empire of Fez and Morocco; of whom a few colonies are found in Sockna, Auela, and Sisath; in such places, the language of the Tuariik is the only one spoken by the inhabitants. The Tuariik are divided into many nations and tribes, who all speak the same language. The Tuariik of Hagara and Kolluvii are thin in growth, rather tall than short, their walk firm but firm, their look stern, and their whole demeanour warlike. Cultivated and enlightened, their national abilities would render them perhaps one of the greatest nations upon earth. Their character, particularly that of Kolluvii, is much esteemed. The western tribes are white, as much as the climate and manner of living will admit. The Kolluvii, who reached the region of Abun, and conquered Agades, and mixed with the nations, are of different colours, many of them black, but their features are not like those of negroes. The Hagara and Mustara tribes are yellowish, like the Arabs; near Soudan there are tribes entirely black. They are not all Mahometsans. In the neighbourhood of Soudan and Tombutcoo live the Tegama, who are white and pagans: they carry on a commerce between Soudan, Fezzan, and Gaudames. Their caravans give life to Mourzouk, which without them is a desert; for they love company, song, and music. The greater part of the eastern Tuariik lead a wandering life.

TUAT. See Twat.

TUB, in Gardening, a fort of hrong upright boxes, calculated for containing large green-house exotics, and other potted plants and trees, when grown too large for the pots. These tubs are made by the cooperers proper for this purpose, somewhat in the garden-pot form, a little wider at than at bottom, from a foot and half to two feet and a half deep; the width in proportion; constructed of the strongest thick staves and bottoms, and well hooped with iron, and with two iron handles at top, by which to remove them; these handles being iron, and generally hooked, especially in very large tubs, in order to receive a pole in each occasion, that the tub and plant together may be more readily moved. The bottom of the tubs have auger-holes bored in different parts, at regular distances, by which to discharge the superfluous moisture, after watering, &c.

In tubbing large-grown plants, they should be removed from their present pots, with the balls of earth about their roots entire; and having earthed the bottom parts of the tubs, the plant should be set in with its whole ball of earth, filling up properly around, and an inch or two over the top of the ball, with more fresh mould, and then watering.

See Shifting of Plants, and Potting.
TUB-Feed, in Ichthyology, an English name given to a species of trigla, sometimes called the flying-feet. See Trigla.

Tun-Man, in the Court of Exchequer. See Precedence.

TUBA, in Antiquity. See Trumpet and Luteus.

Tuba, in Natural History, a name by which many old authors call the cuttisum.

Tuba, in Geography, a river of Russia, which runs into the Enifei, 16 miles S.W. of Abakanfs, in the government of Kolivan.

TUBAI, one of the small Society Islands, in the South Pacific ocean; about 12 miles from Bolabola. S. lat. 16° 12'. W. long. 151° 44'.

TUBANSKA, a town of Russia, in the government of Irkutsk; 44 miles N.W. of Ilimfik.

TUBANTES, in Ancient Geography, a people of Lower Germany, on the other side of the Rhine. According to Cluver, they at first inhabited the country now called the counties of Ruenberg and Lippe; and from hence they traversed the territory which lies between the Rhine and the Elbe.

TUBAON, in Geography, a town on the north coast of the island of Java. S. lat. 5° 52'. E. long. 112° 14'.

TUBBAULEH, a town of Hindoolan, in Lahore; 10 miles S.S.W. of Callanore.

TUBBER, in Mining, a name given in Cornwall to that mining instrument, which is in other parts of England called a bolo.

TUBBER-Men, in Cornwall, the people who work with this tool, and who are, from its other name of bolo, called in other places beel-men.

TUBBERMORE, in Geography, a part-town of the county of Londonderry, Ireland, which is 90½ miles N. by W. from Dublin.

TUBE, TUBUS, pipe, conduit, or canal; a cylinder, hollow within, either of lead, iron, wood, glass, or other matter, for the air, or some other fluid, to have a free passage or conveyance through.

The term is chiefly applied to those used in physics, astronomy, anatomy, &c. On other ordinary occasions, we more usually say pipe.

In the Memoirs of the French Academy of Sciences, M. Varignon gives a treatise on the proportions necessary for the diameters of tubes, to give precisely any determinate quantities of water. The refuit of his piece turns upon these two analogies; that the diminutions of the velocity of water, occasioned by its friction against the sides of tubes, are as the diameters; the tubes being suppos’d equally long; and the quantities of water issuing out of the tubes, are as the square roots of their diameters, deducting out of them the quantity each is diminished.

For the tubes of barometers and thermometers, see Barometer and Thermometer. For the ascent of liquors in capillary tubes, see Ascendent and Capillary.

TUBE, in Astronomy, is sometimes used for telescope (which see); but more properly for that part of it into which the lenses are fitted, and by which they are directed and used.

The goodnes of the tube being of great importance to that of the telescopes, we shall here add its structure.

The Construction of a Draw-tube for a Telescope.—The chief points to be regarded here are, that the tube be not troublesome by its weight, nor liable to warp and disturb the position of the glasses; so that any kind of tube will not ferve in every place: but,

1. If the tube be small, it is best made of thin brass plates covered with tin, and formed into pipes or drawts, to slide within one another.

2. For long tubes, brass or iron would be too heavy; for which reason, some chafe to make them of paper, thus: a wooden cylinder is turned, of the length of the paper, and of a diameter equal to that of the smallest draw. About this cylinder is rolled and pasted paper, till it be of a sufficient thickness: when one tube is dry, provide others after the same manner; still making the last ferve for a mould for the next, till you have enough for the length of the tube desired. Lastly, to the extremities of the drawts are to be glued wooden ferrills, that they may be drawn forth the better.

3. Since paper drawings are apt to swell with moist weather, so as to spoil their sliding; and in dry weather to shrink, which renders them loose and tottering; in both which cases, the situation of the ferrills is easily disturbed; the best method of making tubes is as follows: glue parchment round a wooden cylinder, and let the parchment be coloured blue, to prevent the reflected rays making any confusion. Provided every this slits of beech, and bending them into a cylinder, glue them carefully to the parchment; cover this wooden case with white parchment, and about its outer extreme make a little ring or ferril: after the same manner make another draw over the former; and then another, till you have enough for the length of the tube.

To the inner extremities of each draw, fit a wooden ferrill, that the furious rays, striking against the sides, may be intercepted and loft. In those places where the ferrills are to be put, it will be proper to furnish the ferrills with female screws. Provide a wooden cover to defend the object-glafs from the dust, and putting the eye-glafs in its wooden ferrill, fasten it by the screw to the tube. Lastly, provide a little wooden tube of a length equal to the distance the eye-glafs is to be from the eye, and fit it to the other extreme of the tube.

Tubes, or Pipes, among Florists, is that part of a fine flower which has something of a straw-like pipe or opening; and which, to constitute a good flower, in some sorts, as those of the auricula and polyanthus, should stand exactly in the centre of the blofom, and have a truly round or circular form; be well filled with chives or little thread-like parts, something in the manner of a brush at their points, rising even with the face of the pip or blofom; as when only the style or point of ripes like a pin, without being surrounded or encompassed with the chives to the same height, the flower is said to be pinned, and displays a chafm or vacancy, which is to very unpleafant to the eye of the curious in flowers, that though, in many other respects, such flowers may have good properties, yet failing in this central perfection and beauty, nothing else can atone or make up for it; and such flowers are, of course, held in but small estimation by the florist. See Tube and Tubs.

Tubes, in Artillery, are instruments used in quick firing, made with us of tin; their diameter is two-tenths of an inch, so as just to enter into the vent of the piece; their length is about five or six inches, with a cap above, and cut flanting below in the form of a pen, and the point is strengthened with some folder, that it may pierce the cartridge.

Through each tube is drawn a quick-match, and the cap is furnished with mealed powder, moistened with spirits of wine. To prevent the mealed powder from falling out by carriage, a cap of paper is tied over it, which is taken off when used; but of late this cap is made of flannel, steeped in spirits of wine, and with salpetre dissolved in it; and there
there is no occasion to take it off, because it takes fire as 
quicker as loose powder. The French use a small reed, to which 
is fixed a wooden cap, and they are about two inches long, filled with meale 
powder, moistened with spirits of wine; and a small hole is 
made through them of the size of a needle, through which 
the fire darts with great violence, and gives fire to the 
cartridge, which must be pierced before-hand with the 
priming-iron. 

These tubes may be kept a great while without being 
spoiled; but piercing of the cartridge retards the quickness 
of firing. Muller's Art. p. 293.

TUBE, Alimentary. See DUCT.

TUBE, Eustachian, or Trumpet, in Anatomy, a canal of 
communication between the throat and the tympanum. See 
EAR.

TUBE, Eustachian, Disease and Obstructions of, in Surgery. 
These are often a cause of a considerable degree of deaf-
ness, because it is necessary for perfect hearing, that air 
should be conveyed from the mouth through this passage 
to the cavity of the tympanum, which now can no longer 
happen.

A degree of deafness generally attends a severe cold, 
which is accounted for by the Eustachian tube being ob-
structed with thickened mucus. Mr. Saunders tells us, that 
the obstruction most frequently arises from syphilitic ulcers 
in the throat, or sloughing in the cysynanche maligna. The 
Deafness comes on when such sores are healed, that is, when 
the obstruction is complete. The defect of a nasal polypos 
into the pharynx, and enlarged tonsils, have also been known 
to close the tube.

When the Eustachian tube is obstructed, the patient can-
not feel the membrana tympani crackle, as it were, in his 
ears, or blowing forcibly with his nose and mouth stopped. 
Previous ulceration, or disease of the throat, will sometime 
times aid in facilitating the diagnosis.

When the Eustachian tube is obstructed with mucus, it has 
been proposed to employ injections, which are to be 
thrown, by means of a syringe and catheter, into the guttural 
orifice of that canal. This operation, however, is alleged 
to be always attended with trouble; and when the os spon-
gioseum inferius happens to be situated near the floor of 
the orbit, the introduction of any instrument like a female ca-
theter would be impracticable. Richerand Nofographie 
Chirurgicale, tom. ii. p. 131. edit. 2.

Mr. A. Cooper had noticed, that hearing was only im-
paired, not lost, when suppurations in the tympanum had 
injured, and even destroyed the membrana tympani; and 
that the degree of deafness by no means equalled what re-
Sulted from an obstruction of the Eustachian tube. Hence, 
when the tube was permanently obliterated, he conceived 
that a small puncture of the membrana tympani might be 
the means of enabling the patient to hear. Mr. A. Cooper 
practised the plan with success, and others have imitated him 
with the same success.

The operation consists in introducing an instrument, re-
sembling a hydrocele trocar, but curved, into the meatus 
auditorius externus, and pushing it through the anterior and 
inferior part of the membrana tympani; a place rendered 
most eligible, on account of the situation of the choorda 
tympani and manubrium of the malleus, parts which should 
not be uninjured. The instrument must not be introduced 
for, lest it should wound the vascular lining of the tym-
panum, and cause a temporary continuance of the deafness, 
by an effusion of blood. When the puncture is made, in 
proper cases, and in a judicious manner, hearing is immedi-
ately restored. A small hole in the membrana tympani now 
conveys the air into the cavity of the tympanum, answering 
the same purpose as the Eustachian tube.

The surgeon will be able to operate with more ease, if he 
take care to lessen the curvature of the meatus auditory, by 
drawing upward the external ear.

There is some chance of a relapse, in consequence of the 
opening closing up. This consideration has led Richerand 
to propose making the aperture with caustic, so as to de-
froy a part of the membrane. (Nofographie Chirurgicale, 
tom. ii. p. 132. edit. 2.) The fuggation is not, however, 
likely to be adopted, on account of the inconveniences of 
applying caustic within the ear. Mr. Saunders is an advocate 
for making the opening large. This gentleman relates, 
that he infamously returned hearing in one case, in which 
the patient had been deaf thirty years, in consequence of a 
loft of part of his palate by typhilitis. Mr. A. Cooper's 
cases are in the Philosophical Transactions for 1802.

Puncturing the membrana tympani has been attended with 
some degree of success in France, as well as this country. 
It is not to be dismembled, however, that there are 
numerous failures. We are informed that professor 
Dubois has done the operation in four instances, without 
success. Richerand Nofographie Chirurgicale, tom. ii. 
p. 132.

In most cases, the patients who have been benefited, are 
fai'd to have experienced pain just after the trocar was 
withdrawn. The organ, in consequence of not being accu-
Eimated to found, has become so extremely fefible, that it 
could not bear the gentlest impression of the fonorous vibra-
tions; and the patient's firit request, after the perforation 
was made, was that they who were near him might speak 
softly. This exceffive tenderness of the feme gradually 
Eubidies.

TUBES, Fallopian, or Trumpets, in Anatomy, two small 
canals, forming communications between the cavities of the 
uterus and abdomen, and serving to convey the germs of 
the new beings, in generation, from the ovaries to the uterus. 
See Generation.

TUBE, Glass. See GLASS-TUBE, LAMP-Blower, and 
Hermetical Seal.

In order to bend a glafs-tube, if the glafs is pretty thick, 
and the bore narrow, it may be held in the weaker part of 
the lamp-flame, and softened for about an inch or two of its 
length, and then bent flowly into any required shape. But 
if the tube be wide, and the glafs thin, this mode of bending 
will entirely destroy the cylindrical form of the bore at the 
part that is bent, making a double flattening. In order to 
avoid this, first felf up one end of the tube, and then, whilft 
bending it at the required part, blow feadily and gently 
into the open end, and the pressure of the breath will coun-
tera the fulling in of the fides of the bending portion, and 
keep the bore cylindrical. The closed end is then cut of 
by the flie; for which purpole, make a deep scratch with 
eone edge of a fine three-cornered file on the part intended 
to be cut, then break the tube with a smart pull in that direc-
tion in which the scratched part will be outermost; and it 
will in general separate accurately at this point.

In order to join two tubes, heat them both in the flame, 
and apply them together, when quit hot, turning them round 
to finifh the confolidation; or elfe, to avoid the thick 
ring of glafs which this produces, previously close one end 
of one tube, and when the two ends are fully joined, blow 
into the open end of the other tube, and pull them out a little 
at the point of juncture, till an equal cylinder is formed.

To form a bulb (e.g. of a thermometer), chufe a tube 
of
of a very equal bore, seal the end in the usual manner, and to collect a greater mass of glafs at the end, press upwards on it while quite hot with any iron instrumen, fo as to con- solidate and shorten it a little; let it remain in the hottest part of the flame, till the lump of glafs is quite white hot; then remove it, put your lips to the open end without loss of time, holding it with the hot part loweft, and blow moderately and steadily. The lump of hot glafs will immediately open into a bulb, the size of which may be regulated at pleasure.

TUBE, Stentorophonic and Torricellian. See the adjectives.

TUBEPILLY, in Geography, a town of Hindooftan, in Mylfo; 20 miles W. of Chenna Balabaram.

TUBEL, a word used by some chemical writers to express scales of copper or brass.

TUBELDIE, in Geography, a town of Dar-Fur; 180 miles S. of Coblé.

TUBER, or TUBERCLE, in Botany, a kind of round tubgird root, in form of a knob or turnip.

The plants which produce such roots are hence denominated tuberof, or tuberous plants. See TUBEROUS Roots.


Eff. Ch. Roundish, feshy, solid, closed; its substance variegated with veins bearing beaten.

1. T. cervinum. Common Truffle. Perf. n. 1. With. 1. Bulliard. v. 1. 74. t. 356. Sowerb. Fung. t. 309. (T. brumale, pulpa obfcuris odoris; Mich. Gen. 221. t. 102. Tuber; Tourn. Int. t. 333. T. terre; Gen. Em. 1583.)—Blackish, rough with prominent warts. Found under the surface of the ground in moift parts of Europe, where the soil is light and dry; as well as in Japan, and the East Indies. Dogs are taught to find this fungus by the smell, and to feratch it out of the earth. It is brought to table, either finely boiled, or flewed in various forms.

The French and Italians introduce truffles into different made dishes, sauces, pies, &c. They are reported to have a stimulating, or aphydiacal quality, which, whether imaginary or not, perhaps renders them more popular than their flavour, which is trifling. The size of this fungus is about that of a walnut in its outer coat, but the surface is irregularly tumid, and harsh to the touch from innumerable fhab warts. The inner subsance is greyish, or pale brown, with numerous curved branching veins, lodging the minute feeds. No signs of a root are observable.

There are said to be several variations of colour in this species.

2. T. magnum. Musky Truffle. Bulliard v. 1. 79. t. 479. Perf. n. 2.—Blackish, smooth.—Native of France. Like the foregoing in size, and general figure; but its surface is smooth, the internal subsance rather soft, and the fcent musky. By drying the coat becomes wrinkled. Bulliard.

3. T. griseum. Grey Truffle. Perf. n. 3. (Truffle grise; De Borch Truffes du Piemont, 7. t. 1. 2.)—Roundish, irregular, smooth, soft, greyish-achicoloured.—Native of Piedmont, in a light, moderately moist, soil. The size of the two preceding, but more irregular in shape, of a foapy texture and light colour, with a strong fcent of garlic.

4. T. album. White Truffle. Bulliard v. 1. 80. t. 304. Perf. n. 4. With. n. 2. Sowerb. Fung. t. 310.—(Bianchetti; De Borch Truff. du Piem. 6. 7.) Lycoperdon gibbosum; Dickf. Crypt. fale. 2. 26.—Light reddish-brown, roundifh, half above ground; veins rufly-coloured.—In woods, in England and France, also in Greece, but partly funk in the earth. The outide is smooth, turning more yellow in drying; the inner subsance refembles rhubarb. Its flavour is faid to be difagreeable.

Dr. Withering defcribes a variety, or more probably, as he obferves, a different species, whose internal subsance is uniform, like coar, of the hue of tanned leather; the surface knobby and pitted, hairy in the pits. The whole mass perforated by items of grafs; fo that it muft have been above ground in a soft flafe.

5. T. effimum. Summer Truffle. Mich. Gen. 221. n. 2. (T. album 3; Perf. n. 4). Lycoperdon effimum; Wulf. in Jacq. Coll. v. 1. 349.—Nearly globular, smooth, brown, or blackish; fpongy within; entirely subterraneous.—Plentiful in Carinthia and Carniola from May to Auguft. These have little tafte or smell, but are used much for the table. When young the surface is whitifh and fealy, but gradually becomes brown or blackifh. Their fize is equal to a chufnut or walnut. Perhaps, as Perfoon thought, this may not be a different species from the laft.

6. T. cervinum. Baldart Truffle. With. n. 3. (Tu- berca cervina; Lob. Ic. v. 2. 276. Lycoperda trium tumefcens arfihon fulvum, cortice duriofo crafo et granulato, medullü ex albo purpuraceo, femine nigro caffio; Mich. Gen. 220. t. 99. f. 4.)—Globular, finely granulated, rather folid, finally burfting; powdery in the centre. Found barely funk in the ground, in several parts of England, as well as in Bohemia and Silefia, about Sep- Tember. The diameter is about an inch and a half; the outide hairy; inner subsance, or nucleus, purplifh.

7. T. solidum. Hard Truffle. With. n. 4. (Lycoperdon cepa facie; Vaill. Parif. t. 16. f. 5. 6.)—Glo- bular but comprifed, (rather depreffed,) brown, reticulate, very firm; blue-black within. —Found in Dr. Withering's park at Edgbaston, near Birmingham, under an oak-tree by the pool, in Auguft. This had a flert root, as Vaillant repreffes it, and appears to be, as Mr. Sowerby fuppofes, only a nearly feffile variety of his Lycoperdon defulfum, Engl. Fung. t. 311.


Found on heaths, and in woods, in Italy and England in the fummer, but rare. Two or three inches in diameter, folid, never burfting, nor becoming internally powdery. The outer skin is brown, or olive, cracking into angular portions, but not warty. Inner subsance purplifh, veined with black; finally quite black. Apparently different from Lycoperdon aurantium of Bulliard, t. 270; fo that the fine fmoke in his figure may not be altogether, as Bolton fays, "conjeftural;" it may reprefent the powdery feeds, eloping from holes eaten by insects, as Bolton himfelf fuppofes.

TUBER, or TUBEROUS, in Surgery, is used for a knob or tumour growing naturally on any part; in opposition to tumours which rise accidentally, or from a difeafe.

The fame term is also used for a knot in a tree.

TUBERA TERRÆ. See TRUFFES.

TUBERAN, in Geography, a town of Perfoa, in the province of Kerman; 171 miles N.E. of Sebirs.

Vol. XXXVI.
TUBERCLE, a small, hard, superficial tumour, circumcised, and permanent, or suppurating partially.—Batesman's Synopsis of Cutaneous Diseases.

TUBERCULA QUADRIGEMINA, in Anatomy, a part of the brain. See Brain.


Eff. Ch. Roundish, compact, smooth, permanent, soluble in wet.


2. T. vulgaris. Scarlet Tubercularia. Tode 18—20. t. 4. f. 30. Perf. n. 2. (Tremella purpurea; Linn. Sp. Pl. 1626. Huds. 565. Lichenoides tuberculodam amoenae purpureum; Dill. Mufc. 127. t. 18. f. 6.)—Aggregate or scattered, bright red, corrugated, with a thick pale base. Very common on dead or dying branches of trees, especially currant-bushes, where it becomes conspicuous by its scarlet or deep-red colour.

3. T. granulata. Dull Granulated Tubercularia. Perf. n. 3. —"Roundish, dull red, with a corrugated granulated surface."—On the branches of Sycamores, or other species of Acer, but rare. Its colour is brownish and opaque; yellowish within. Perf. 11.


5. T. ciferante. Chefnut Tubercularia. Perf. n. 5.—"Scattered, small, sunk in the bark, flattish, very smooth, bright red."—On the bark of the chefnut-tree. Half the size of T. vulgaris, and scarcely projecting out of the cuticle of the bark. Its colour externally is like that of a strawberry, the infide yellowish, firm.

6. T. rofo. Rosy Tubercularia. Perf. n. 6. Obf. Mycol. n. 137. fasc. 1. 78. (Lichen rofeus; Schreb. Lipf. 140.)—Scattered, loofe, irregularly globulo, rose-coloured. —On trees, especially adhering to Lichen felleria, parietinus, &c. We have found it on the former at Hetherfet, near Norwich. The bright-pink little mafles, of which this species confifts, might be taken for the tubercles of fonie Lichen; but they diffole in wet.

TUBERCULUM ANNUARE, in Anatomy, a part of the brain. See Brain.

Tuberculium Loweri, a small eminence in the right auricle of the heart. See Heart.

Tubercinense Ophiium, Tubernoke, in Ancient Geography, a town of Africa, built in form of a crecent, between the fummits of a mountain, 7 leagues S.W. of Tunis.

Tubernoki, in Geography, a town of Tunis, anciently the see of a bishop; 21 miles S.S.E. of Tunis.

Tuberose, in Botany, see Polianthaceae. This English name is not compounded of tuber and rofe, as most people would naturally conceive, but originates in the old appellation of Tuberofe, or Tuberosus, Hyacinth, Hyacinthus tuberosus; alluding to the tuberous root, and the refulance of the flower to a Hyacinth.

Tuberous Roots, in Gardening and Agriculture, such as confift of one or more swelled or knobbed tubers, of a folid fleshy fubftance. In this tribe are comprifed many plants of the ornamental flowery kind, and fome efeuents of the kitchen garden; as in the former, anemone, ranunculus, filipendula, many forts of iris, aconitum, paixon, orchis, cyclaen, winter-aconite, day-lily, &c.; fome also with bulbous tuberous roots, as gladiolus, polianthes and tuberofe, ophrys, &c.; and of the efficient tuberous roots are the potatoe and Jerusalem artichoke; all of which plants are principally per- manent in their roots, being perpetuated annually by offsets, or cuttings for fets. See Root.

It has lately been fuggfted, and in fome meafure confirmed by experiment, that, in cultivation, the root of this kind, called the potatoe, is liable to have the difefe termed the curl produced in crops of it, by the tubers which are used for feed-flock or fets having been allowed to become too ripe the preceding year; and that this praftice of over- ripening, being repeated year after year, is the real caufe of the difefe, the vegetative power in the tubers being in this way exhausted.

It has been long known to all cultivators of this fotr of crops, that the ufual method of reproducing any particular variety of the root is by cuts or fets of the tubers; and that this manner of propagation is continued from year to year, as long as that particular fort is wished for, without ever thinking of reinvigorating the feed-flock, or tubers for planting, by raising new plants from the real feed; the species being reproduced only by fowing the true feeds of the plant. It is only thus that new varieties are obtained. But if feeds be taken from any particular variety which is wished to be preferred, and if care be exercised that the plants shall have no communication with the farina of any other plants of the same fpecies in flower, then the produce of these feeds will probably be the fame with that variety from which the feeds were faved; and from the feed-flock being renewed, and reinvigorated in this manner, it seems likely that the variety so obtained may, by observing a proper management, be preferred from this difefe, or any other kind of degeneracy, for any length of time.

This opinion of the over-ripening of the feed-flock for the supply of the ensuing year, by allowing it to remain too long in the ground, especially when planted early, and of the repetition and continuance of it rendering the tubers wholly unfit for producing vigorous healthy plants, by exhausting their power, being the chief caufe of this difefe, has however been almost uniformly objected to, as being quite contrary to experience in regard to feeds in general, as full ripenefs has been confidered the bell recommendation of them. It is notwithstanding apprehended, that this objection arises from the taking of an improper view of the matter. For though it be true, that all of what are properly called feeds are improved by being thoroughly ripened; the cuts or fets taken from the tubers of this fort cannot, strictly speaking, be confidered as feeds. The planting cuts of this kind of tuberous root, is analogous, it is suppofed, to budding or grafting of trees, being only a secondary mode of propagation, and consequently that such an objection cannot hold good. Besides, the fuggftion is illuftrated and supported by different other circumstances and confiderations, as well as by the well-known powerful caufe which weakens the vegetative power in the tubers,—that of allowing the plants that are intended for the supplying of feed-flock for the ensuing year to run to flower, and produce feed. This, it is thought, should in all cafes be prevented, by cutting off the flowers as they appear in their embryo state. In this way, by turning nature from her ordinary course, to force her to exert herfelf in another direction, and to throw back into the tubers that portion of the vital principle of the plant, which would have been ex- hausted in the formation of flowers and feeds. Nothing will, it is fuppofed, contribute more to prevent degeneracy in this fort.
fort of tuberous root, and especially of the disease to which it is so liable, than this treatment. See the first volume of the Transactions of the Scottish Horticultural Society.

**TUBERS, in Geography, a town of Tunis, anciently the see of a bishop; 48 miles S.W. of Tunis.**

**TUBIG, a town on the E. coast of the island of Samar.** N. lat. 12° 13'. E. long. 135° 27'.

**TUBILSTRIUM, compounded of tubus, trumpet, and lufus. I purify, in Antiquity, a fea or ceremony in use among the Romans. This denomination was given to the day on which they purified their sacred trumpets, as also to the ceremony of purifying them. It was held on the fifth and last day of the feast of Minerva, called quinquatrus, or quinquatrina, which was performed twice a year.**

**TUBINGEN, in Geography, a town of Wurttemberg, situated in a valley on the Neckar, between two hills. An university was founded here in the year 1477, and restored in the year 1770. Here is a seminary for the study of divinity, and a college for the nobility. The foundation of the town is unknown, but附属ed of great antiquity. It is the origin of the pfalzgrave of Swabia, and though the decent of the ancient palatines of Tubingen be unknown, yet they had their pfalz or palatium, which stood on the spot of the present castle. One of the eldest pfalzgraves known at present, lived in the year 1080; and the laft of them, viz. George Eberhard, died in the year 1631. The two pfalzgraves, Gobz and William, in the year 1342, fold the town to count Ulrich of Wurttemberg. In 1535, duke Ulrich, pulling down the old castle, caufed that of Hohen Tubingen, which is the present residence, to be erected, with fortifications. In 1540 the town was damaged by fire. In the thirty years' war it was frequently besieged and taken; and in 1688, was considerably injured by the French; 16 miles S.S.W. of Stuttgart. N. lat. 48° 34'. E. long. 9° 10'.**

**TUBIPORA, Red tubular Coral, in Natural History, a name given by Linneus to a genus of Zoophyta, in the class of worms; the characters of which are, that its animal is a sferis, and that it is a coral, consisting of cylindrical, hollow, erect, and parallel tubes. In Gmelin's edition of the Linnean System we have the following Species.**

**MUSICA. With fasciculated combined tubes; the transformate partitions membranaceous and distant. This is the purple tubipora of Pallas, of which he mentions a variety, or the flexuofe tubipora. It is found in the American, Indian, and Red seas, affixed to other corals or rocks; and is used by the Indians as an antidote to scurvy and wounds inflicted by poisonous animals.**

**CATENULATA. With parallel tubes, connected into a lamina anafoomening with a folded wreath. Found on the shores of the Baltic sea.**

**SERPENS. With cylindric, erect, very short, diantar, axillary tubes; divergently at the dichotomous base; the Millopora lilaceas of Pallas. Found in the Mediterranean and Northern seas, and on the shores of the Baltic.**

**FASCICULARIS. With filiform fasciculated tubes; the siles anafoomening. Found on the shores of Gotland.**

**RAMOSA. With roundish interfaces, and simple, flexuofe, aggregate, conglutinated tubes of the conoid branches. Found in the White sea.**

**PENNATA. Dichotomous, erect, with tubes distributed in the form of small feathers. Found in the Mediterranean sea.**

**PENICILLATA. Stalky; the top incrustated, and formed of tubes connected towards the base. Found in the Greenland sea, affixed to terraces.**

**FLABELLARIS. Depressed, flabelliform, radiated with parallel conjoined tubes. Found as the former.**

**STELLATA. With separate tubes, combined in layers or tables, many of these tables being remote, horizontally tubulous, and radiated with frizz on the surface. Found among fossils.**

**STRES. With diverging diverging tubes, loose behind and often bent; with tubes small, simple, and horizontal, combined. Found among fossils.**

**TUBINA, in Geography, a town of Algiers, anciently called Thubana. The Arabs bury their treasure under the ruins; 110 miles S.S.W. of Contantina. N. lat. 35° 3'. E. long. 5'.**

**TUBOBO, a town on the south coast of Mindanao. N. lat. 7° 40'. E. long. 124° 32'.**

**TUBUCUF, a town of France, in the department of the Mayence; 6 miles N.N.E. of Laflat.**

**TUBOR TERR. A, name used by some botanical authors for the cyclamen or bow-bread.**

**TUBUG, in Geography, a harbour on the west coast of Mindanao, much frequented by pirates. Near it is the house of a rajah, strongly palisaded, and defended with twenty fire-guns; 10 miles N. of Pollock harbour.**

**TUBUHACAN, a town of Africa, in the country of Sugulmea; 9 miles from Sugulmea.**

**TUBULARIA, in Zoology, a genus of the Zoophyta class of worms; the characters of which are, that the animal is vegetating and radiated; the head crested with tentacula, generating small eggs; and that the stem is tubulous, horny, very simple or branched, affixed at the bottom, and the animal thrills out at the apex. Among the following species are included several of the tubular corallines of Ellis.**

**Species.**

**CORNUCOPE. With fimbute tube, attenuated below, flexuous and rough. Found among the corals of the American and Mediterranean seas. Colour dusky-yellow.**

**INDIVISA. With very fimple flanks, and wreathed joints. One of Ellis's tubular corallines. Found in the European and Mediterranean seas. Colour yellowish-grey.**

**RAMOSA. With branched flanks, and wreathed joints: one of Ellis's. Found in the European sea. The soft tubes foridly grey.**

**RAMEA. With compound branched tubes, large and small branches alternate. Found in the Mediterranean ocean. Brownish-grey.**

**FISTULOSA. With dichotomous articulated flanks, with imprecisely in form of a rhombus. Bugle coralline of Ellis. Found in the European, Mediterranean, and Atlantic seas. Pale-grey.**

**FRAGILIS. With dichotomous flanks, and compressed joints. Found in the American sea. White or greenish.**

**MUSCOIDES. With sub-dichotomous flanks, wholly annulate-rugose. One of the tubular corallines of Ellis. Found in the European and Mediterranean seas. Pale-grey.**

**PAPYRACEA. With a very large papyrusceous tube, alternately ramose. Found in the Indian ocean.**

**PENICILLUS. With elongate, fimple, radiated tubes, proliferous and penicillated at the apex. Found in the American sea. It is doubted whether this is the last of this genus.**

**ACETABULUM. With filiform flanks; the terminal pelta or shield frirated, radiated and calcareous. Found in the Mediterranean and American seas. White and soft, and adapted to terrella.**

3 A 7

**Spalacnea**
Splachnea. With capillary very simple flasks; the terminal pelta smooth and membranaceous. Found in the Mediterranean sea. Of horn-colour.


Affinis. Simple, tub-annulated, soft; with the tentacula of the mouth encompassing the papilla attempted. Found on the English coast, adhering to fucet, and akin to the last. Fabric. Stellated, with pinnated cirrhæ, and six rays encompassing the mouth. Found on the shores of Norway and Greenland, often in the fisheries of rocks. Grey, green, or white.

Longicornis. With two setaceous cirrhæ, longer than the tubule. Habitation unknown.

Multicornis. With more than twenty cirrhæ centrally white; body round and hyaline, tubule mace-like. Habitation unknown.

Campulanata. With lunated creft; orifices of the vagina annulated; body concealed within the vagina. Found in the flagrant waters of Europe.

Repens. Crested, with cirrhæ on both sides radiated; vagina extended, tubule opaque, procumbent. Found in the flagrant waters of Northern Europe.

Reptans. With lunated creft; body tractile beyond the vagina. Found in the flagrant waters of Europe. Hyaline, soft, with about fifty cilia.

Sulcana. With infundibuliform creft, ciliated at the base. Found in the pools of Gottingen.

Stellaris. Crested, with pectinated cirrhæ, brown, annulated creft tubule. Found in the focus of the Baltic sea.

Simplex. With eight linear cirrhæ, and conic hyaline tubule. Found in the focus of the Norwegian sea.

Spallanzani. With five plumeo cirrhæ, pectinated on both sides, and cylindric, horny tubules, below incurvated. Found in the Mediterranean sea.

Membranacea. With a double concentric range of fistulous tentacula, and a membranaceous, contractile, vificid, cylindric tubule inclosing the inhabitant. Found in calm parts of the Mediterranean; but doubted whether it belongs to this genus.

Tubularia Fossili, in Natural History, the name of a species of coral found very often fossile in Germany and Italy, and composed of a great number of tubes, or longitudinal pipes, often resembling so many worms ranged perpendicular in the mafs.

They are usually found either in mafs of a lax flone, or in single tubules in thofe of the harder and firmer texture. In these two flates this fossile makes two very different appearances; and, according to the different directions in the mafs, or the different views of them that the fections of it place them in, they make a number of very elegant figures. Hill.

Tubulated Flower, Tubulatus floeolus, in Botany, a term used by authors to express thofe small flowers, a great number of which go to compose one large compound flower. Thofe are called tubulated, by way of distinction from another kind of them, which are, from their shape, called ligulated. The tubulated floeolæ generally compose the dkf, and the ligulated ones the radius of the compound flowers. The tubulated ones are formed into a hollow cylinder, which expands into a mouth at the top, and is divided into five equal segments, which fland expanded, and in some measure bent backward.

Tubuli Concamerati, in Natural History, the name of a genus of the Tubulus marinus, distinguished abundantly from all the others by its figure and inner structure.

They are long tholly bodies, usuallly either of a conic or cylindric form, or clif refulbent the dentales in flape; and sometimes, but that very rarely, they have their smaller end bent and twifled round. They are composd within of a number of hollow compartments, each of which communicates with the next by means of a fiphunculus, which runs through the whole length, or in the manner of the thick nautiluse, or the coru ammonis. We know not thefe in their recent flate at this time, but frequently meet with them fossile in the flones brought from Sweden for pavements, and in some others.

Some authors have called thefe by the name alveoli, confounding them with the conic body found in the belemnites. See Alveolus.

Others have called them pyramidal entochi, others obelisci marisvorti alveolares; and they are the bodies defcribed by Gafner and Aldrovand, under the names of lapides cauda cancri, or concreta. Some late authors have called them also polybalaninis, and others cone-flones. Klein. de Tubul. p. 7.

Tubuli Fossiæ, the name given by authors to the cafes or tubules of sea- worms, found buried in the earth.

They are in their native flate of very various kinds, but by different accidents attending them in their accidental one, they are subject to a multitude of other appearances. They are found of very various fizes, sometimes complete, and buried in the firata of earth or flone; fometimes they are more or lefs perfect, and are immerfed in mafs of the tubes Hel- monit, or leptoria, and in this flate they make one kind of lapis furgingoides, or pipe-flone; but the most beautiful furgingoides, or pipe-flones, are the parts of the bottoms of ships, or pofts fixed in the sea, which have been pieced, in their original flate of wood, by these sea- worms, and afterwards petrifed with the cafes or tubuli of the worms remaining in them.

Of these there are many beautiful fpecimens on the shore of the island of Sheppey, and in our clay-pits about London and Richmond.

Thofe tubuli called dentaia et entalia, are not lefs frequent, and found of various kinds in the clay-pits about London and the hills of Yorkshire; but they are more frequent in fimilar places in France and Italy.

Tubuli Laeviserí, or Galáaphorí, in Anatomy, the cafes in which the milk is secreted. See Breast.

Tubuli Seminiferí, the imnumerable minute cafes compofing the body of the teitís. See Generation.

Tubuli Uriniferí, the small tubes terminating on the papilla of the kidney. See Kidney.

Tubuli Vermiculares, a name sometimes used by naturalists for certain small oblong and hollow sea-shells resembling worms.

Tubulus Marinus, or Canalis, in Natural History, the name of a genus (according to some writers) of univalve shell-fish; the characters of which are thofe: it is of an oblong figure, terminating in a point, and hollow within, in that it resembles a tube or horn. Thofe are also called by the old writers dentaia, from their refulbing the tooth of a dog. See Dentalium, Conchiology, and Shells.

It has been a common error of authors to confound under the general name of tubulus marinus, thofe shells, and thofe very different ones of the vermiculi marini, which make a number of pipes or tubes joined together; thofe, by their number and joinings, have induced a late French author to place them among the multivalve shells, while the canales are usually fingle and separate, and can have no title to any clas but the tubular univalve one. Aldrovand observes, that the
tubuli called *denatula*, and those called *antalia*, differ only in size; and he thinks they have no title to the name *conches*, since they are neither of the nature of the common bivalve nor univalve shells, such as the patella and auris marina; but this is very idle, since by this rule the finalis, and many other families, might be excluded as well as these. This author fays, in another place, that the *antale* is formed of many circumvolutions; whence he seems to have taken in the *bucina* under this name; but later writers have more nicely distinguished in these cafes. The sea-pencil is evidently of this genus, though extremely different from all the other species of it, in having its head pierced with a multitude of holes, in the manner of the head of a watering-pot. Some authors, from the figure of the shell, call this *pholus marinus*, and the French call it *le priape*. Aldrovand. de Tellac. lib. iii. p. 282.


1. T. *fallax*. Doubtful Tubulina. Perf. n. 1. Obf. Mycol. falc. 2. 28. —"Opaque, indeterminate, brownish. Receptacles combined at the top into an uniform bark."—Found, very rarely, on the trunks of trees. Perfon appears to have examined a single specimen only, and therefore knew nothing of the appearance of the plant in an early stage of growth. This specimen was about an inch long, various in breadth, of an earthy or rusty colour. The tubes were full of powder, otherwife he would have thought it rather the early flake of some *Boletus* or *Spharia*.

2. T. *fragiformis*. Strawberry Tubulina. Perf. n. 2. Obf. Mycol. falc. 2. 29. (Tubulifera arachnoidea; Jacq. Misc. Auffr. v. t. 144. t. 15. T. Ceratium; Fl. Dan. t. 659. f. 2.)—Nearly globular; first red; then brown; receptacles rather swelling upwards, dilated at the top.—Found on the trunks of trees, after heavy rains in summer, attra&ing by its likeness to a large strawberry. When arrived at maturity, it becomes opaque, of a rusty brown. The author above quoted mentions in his *Observations Mycologicae*, falc. 2, numerous fungi allied to this, partly observed by himself, and partly described by other authors, which he was doubtful whether to consider as species or varieties. His doubts seem to have been rather increased than diminished when he wrote his *Synopsis*, and therefore we cant premise to remove them. Among these obscure productions are *Sphacorpus fragiiformis*, Bulliard t. 384, and *S. cylindricus*, t. 470. f. 3, which appear to answer well to the generic character of *Tubulina*, and to be specifically dilated from *T. fragiiformis*, as represented by Jacquin. Perfon also mentions a *Reticulina multisulcia* of Sowerby's Fungi, t. 159, which is an altogether erroneous reference; nor shall we attempt to guess whether it alludes to any thing in that author's t. 399, or any other.

TUBULOSE LEAF, among Botanists. See LEAF.

TUBURBO, in Geography, a town of Africa, in the kingdom of Tunis, on the Mejerda, supposed to be the ancient Tuburbum. Mahomet, a late key of this kingdom, planted a great number and variety of fruit-trees in the neighbourhood of this town, which were ranged in so particular a method, that each species was confined to one grove, and thereby removed from all influence of another. In the adjacent valley, where the Mejerda conveys its stream, the fame curious and generous prince erected out of the ruins of a neighbouring amphitheatre, a large mally

bridge or dam, with proper sluices and flood-gates to raise the river to a convenient height for watering and refreshing these plantations. But this, which was too laudable an invention to subsist long in Barbary, was soon entirely broken down and destroyed; 16 miles W.N.W. of Tunis.

TUBUS COROLLÆ, in Botany, the inferior, more or less cylindrical, part of a monopetalous corolla, supporting the LIMBUS; see that article. The tube differs in length, in different genera or species of plants, as well as in shape. A rotate, or wheel-shaped, corolla has the tube necessarily very short, or scarcely any; a funnel-shaped has the same part elongated, and dilated upward. Sometimes the tube conceals the flanms, which are inserted either into some part of itself, or more rarely into the receptacle; sometimes, indeed very frequently, the flaments project, with the style, out of the tube. Its mouth is usually pervious; sometimes hairy; in several genera of the tribe *Asterofolius*, that part is closed by arched or converging valves, covering the anthers. The claws of the petals, in a polypetalous corolla, stand in the place of the tube of a monopetalous one, and in some inflorescences are so far connected, at an early period, as really to constitute a tube, subfrequently splitting into claws. Examples occur in the order of *Proteæceae*, which have caused some perplexity, and difference of opinion, in the characters given by different botanists of the plants of that order.

TUCABATH, in Ancient Geography, a town of Africa, in the interior of Libya, Ptolemy.

TUCANA, in Ornithology, a name given by fome to the toucan.

TUCAPEL, in Geography, mountains of Chili, S. of Concepcion. S. lat. 37° 30'.

TUCAYAN, a town on the W. coast of the island of Negros, N. lat. 11° 12'. E. long. 122° 57'.

TUCCA TERRINITHA, Shoebak, in Ancient Geography, a town in the interior of Africa, near Asfurus and S.W. of it. Ptolemy.

TUCABAR, in Geography, a town of Tunis, on the Mejerda; 24 miles W. of Tunis.

TUCABATCH, in Geography, a town of the state of Georgia; 10 miles S.W. of Oakfuskee.

TUCI, in Geography, a town of Spain, in Betica, S. of Caftulo.

TUCHAN, in Geography, a town of France, in the department of the Aude; 12 miles S. of La Graffe.

TUCHEL, a town of Prufiia, in Pomerelia; 25 miles N.W. of Culm.

TUCK of a Ship, a name given to that part of the ship where the ends of the bottom planks are collected together, immediately under the stem or counter. When this part, instead of being incurved, and forming a convex surface, assumes the shape of a vertical or oblique plane, it is said to be square; and a square tuck is accordingly terminated above by the wing-tranfom, and below, and on each fide, by the fagon-pieces. Falconer.

Tuck Rail, the rail which is wrought well with the upper fide of the wing-tranfom of ships, &c. and forms a rabet for the purpofe of caulking the butt-ends of the planks of the bottom.

TUCKABATCHEES, in Geography, a town of the Creek nation of Indians.

TUCKAHOC CREEK, a branch of the river Choptank, in Maryland.

TUCKAHOE, in Botany, the North American Indian name of a very extraordinary production, found in various parts of the United States, which appears to be a fibrousaneous fungus, nearly allied to the genus *Tuber*; see that article.
article. The Tuckahoe is found in irregular, more or less globular or oblong, lumps, from an ounce to thirty pounds in weight, having a brown corrugated bark. Its internal fibres are uniform, solid, snow-white, farinaceous, with little or no taint or flaw; and has been used by the natives as food. This production is generally found attached to the roots of some tree, especially of the genera Pinnus and Quercus, the fibres of which are interwoven with part of its texture, but in process of time are obliterated. Its growth appears to be very slow. In decay the inner fibres assume an acid flavour, and brown colour. Such are some of the particulars of the history of this fungus, for so we presume it to be, which we have received from Dr. Macbride of Charleston, South Carolina; who has lately given a more ample and detailed account of it, with specimens, to the Linnean Society of London.

TUCKAREAH, in Geography, a town of Africa, in Sahara, anciently called Tigava; 106 miles S. of Algiers.

TUCKATPOUR, a town of Hindoostan, in the circle of Ruttumpour; 18 miles S.W. of Ruttumpour.

TUCKEA, a town of Hindoostan, in Goondwana; 10 miles W. of Nagpour.

TUCKER, in Rural Economy, a term sometimes applied to a person employed in the business of fulling.

Tucker, Josiah, D.D., in Biography, a controversial writer, was the son of a small freethinker in Wales, and born in the year 1711. Having completed his education at St. John's college, Oxford, and taken orders, he served a curacy at Bristol, and was promoted by bishop Butler, who made him his chaplain, to the rectory of St. Stephen's in that city. His residence at Bristol drew his particular attention to commercial matters, in reference to which he published, about the year 1747, "A brief Essay on the Advantages and Disadvantages which respectively attend France and Great Britain with regard to Trade;" which was followed by "Reflections on the Expediency of a Law for the Naturalization of Foreign Protestants," published in two parts, 1751—2, and advocating liberal and enlarged principles. In these principles he espoused the cause of the Jews in two "Letters to a Friend concerning Naturalization," 1753. The part he took on this occasion expounded him to much obloquy, and was the occasion of his being burnt in effigy by the populace. However, in 1755 he obtained the degree of D.D., and was made a prebendary of Bristol. His activity in promoting the election of Mr. Nugent, afterwards Lord Clare, as a representative for Bristol, was recom pense in 1758 by the deanery of Gloucester. In the controversy occasioned by the petitioning clergy in 1771, he took a part, and published in 1772, "An Apology for the present Church of England, as by Law established," in which, whilst he opposed their claims, he expressed his wish for the omission of the Athanafian creed in the church service, and for excusing students of the universities upon matriculation, and graduates in lay faculties, from subscription to the articles. In the same year he published "Six Sermons," on doctrinal points that were then much agitated. In 1773 appeared his Letters to Dr. Kippis's "Vindication of the Protestant Diffenting Ministers with regard to their late Application to Parliament," which were written with moderation and candour, and in which he seems to have united the claims of the church of England respecting its own members, with liberal concessions to those who differ from it. In 1774 he published his "Four Tracts, together with Two Sermons, on Political and Commercial Subjects;" in which he unfolded his whole plan for settling the dispute with America, deemed by both the contending parties extravagant; this was "to separate entirely from the North American colonies by declaring them to be a free and independent people, over whom we lay no claim; and then by offering to guarantee this freedom and independence against all foreign invaders whatever." But he did not wish to concede the point of right in this controversy, as appeared from his publication in 1775, entitled "The respective Pleas and Arguments of the Mother Country and of the Colonies distinctly set forth; and the Impossibility of a Compromise of Differences, or a natural Concession of Rights, plainly demonstrated." Mr. Burke treated his scheme with some deference, and before he published his one of three subsequent publications on this subject, the dean became ardent and irritable in the prosecution of this dispute, and allowed himself in the abuse of the colonists, and particularly of Dr. Franklin. In 1781, apparently deviating from the principles which he had avowed in more early life, he attacked Mr. Locke and his followers on the origin, extent, and end of civil institutions, in his "Treatise concerning Civil Government." The advocates of Locke responded to him with warmth, and perhaps with some degree of altemity; but "he might confine himself (as one of his biographers says) by having his work quoted by lord Mansfield in the house of peers, with a fine eulogium on the talents of the author, whom he mentioned as a writer of the first class for sagacity and knowledge." Indulging his resentment against the Americans, and predicting consequences likely to result from their independence, which have not been verified by fact, he addressed to Mr. Necker, in 1782, a pamphlet entitled "Cui Bono? or, An Enquiry, what Benefits can arise either to the English or the Americans, the French, Spaniards, or Dutch, from the greatest Victories or Successec in the present War." In the "Preface" to this work, he undertakes to refute the opinions of the advocates for equal representation. In his subsequent commercial publications he declares himself adverse to all restrictions upon trade, and dores of leaving it to regulate itself. Having regained his rectory at Bristol to his curate, he resided at his deanery in Gloucester, and discharged the various duties of his office with exemplary fidelity. Although he was married, he left no issue. He lived to the advanced age of eighty-eight years, and died in 1799, by a paralytic stroke. Gent. Mag. Month. Rev. Gen. Biog.

Tucker, the Rev. William, one of the gentlemen of king Charles I.'s chapel, and precentor of Wittembertain Abbey, was a very judicious composer of choral music. Mr. Mafon, in speaking of the full anthem, "O give thanks unto the Lord," by this ingenious dilettante, very truly observes, that "every syllable in this composition has its full length, and each part of a sentence its proper pause; it admits no perplexing alterations or unmeaning repetitions, but proceeds in one full, yet distinct train, harmonically, yet intelligibly."

So many circumstances must concur in forming a complete musician among the lovers of the art, who have no other view in its cultivation than pure amusement, that however ardent their zeal and sublime their genius, if they have not been early initiated in the mysteries of counterpoint, and purshed its labyrinths with the perseverance of professional students, timidity, embarrassment, ignorance, and confusion, will appear in their scores at the first glance of a regular-bred composer. In general, their practice, reading of scores, experience, and application, are inferior to those of the meanest organist, or ripieno performer: disdainful to perform under parts, or to study them in the works of great masters, as soon as they know their gamut, their chief practice connotes in solos and amusing melodies; for that they remain to the end of their lives unable to count reeks, or keep
keep time, with professional firmness and accuracy; and either totally neglecting or running away too soon from plain counterpoint to florid, a want of instruction and regular study appear in the bases they put to the flightiest and most natural melodies.

TUCKER'S ISLAND, in Geography, a small island in the Pacific ocean, so called by Capt. Wilson of the Duff, from one of the crew who left the ship there. N. lat. 7° 22'. E. long. 122° 5'. Also, a small island near the coast of South Carolina. N. lat. 32° 36'. W. long. 85° 16'.

TUCKERTON, a sea-port of New Jersey, in Little Egg harbour. Also, a town of Burlington county, New Jersey; 201 miles from Washington.

TUCKET, a word used by Shakespeare in "All's well that ends well," sc. iii. 8. corrupted from toccata, Ital. a flourish.

TUCKIN, in Agriculture, the name of the fatchel that is sometimes used in setting beans in the field.

TUCKING-MILL, in Rural Economy, a name given in some places to a fulling-mill.

TUCKIT HAZAHA, in Geography, a town of Hindoostan, in Moultan; 10 miles N.W. of Toulomba.

TUCKUM, a town of the district of Courland; 33 miles E. of Goldingen.

TUCKUSH, a small island in the Mediterranean, near the coast of Algiers, opposite a town of the same name on the continent; 12 miles E. of the Cape of Iron.

TUCKWAPOR, a town of Hindoostan, in Oude; 14 miles S. of Bahraitch.

TUCKYARA, a town of Bengal; 24 miles S. of Burdwan.

TUCOPIA, an island in the Pacific ocean, discovered by Quirós in 1606. He could not find any anchoring place, but was near enough to secure with the inhabitants, who offered him a present of nuts, and a piece of cloth made of palm-leaves; and they sowed some plantations of fruit-trees.


TUCRI, a town of Naples, in the county of Molife; 13 miles E.S.E. of Molife.

TUCUBI, or TACUBIS, in Ancient Geography, a town of Spain, in Lusitania.

TUCUMAN, or TACMA, now called the Intendancy of Salta, in Geography, a province of South America, in the vice-royalty of Buenos Ayres, extending from 26° to 33° W. long., and from 22° 30' to 35° S. lat.; bounded on the N. by Chicas and Tarija, on the E. by Chaco and Yaptizlaga, on the S. by Cordova, and on the W. by the Andes, which separate it from Chili. This province is now divided into those of Salta and Cordova. Eftalla says that the province of Tucuman was the largest in America, extending from the corner called La Guadilla to the river of Quica, 380 leagues; of which 314 are fertile lands with carriage-roads, and the remaining 66 barren country with horned-places. As far as Ijuyi the temperature is benign, inclining to the warm and humid, and travellers find much convenience and abundance of provisions. The territory of Tucuman is rich and well cultivated, especially towards Chili, with some defert cantons upon the Magellanic fide. The soil is sandy, and almost without stones, but very well watered, producing plenty of cotton, wild cochineal, wax, honey, pallel for dyeing, and a variety of fruits, with roots, Indian wheat, &c. They likewise breed here vast numbers of cattle, and have plenty of deer, and other game, with lions and tigers in their woods. The sheep here are very large and strong, but their wool is fine, and the inhabitants use them also for carriage. The natives were formerly naked, but since somewhat civilized by the Spaniards, and covered with their woollen and cotton manu-

factures; they live in small villages very close to one another. Its two principal rivers are the Doke and Salado, i.e., the sweet and salt ones, besides innumerable smaller streams. In this province a kind of large crow is hunted, and an animal between a hare and rabbit. Here are said to be twelve kinds of bees, all producing honey of different qualities. The chief drink is called "Aloja," but Efafla does not mention its ingredients, but it is the chica made of maize. Throughout the province there is, as he says, no person to poor that he does not kill a cow or a helter every day for the support of his family.

In the jurisdiction of San Miguel de Tucuman (see St. Miguel) is found the tree called "Quebracho," a name derived from its extreme hardness, which breaks the axe; the outer part being white and the centre red, and the latter, after being steeped in water, becoming hard and heavy like stone. In the same province are found spiders, which weave a thread of great strength and beauty. About a league to the south of San Miguel is the salt river called Salí. This town is remarkable for the manufacture of a kind of cars, used in transporting articles of commerce. The city of Salta (see Salta) is crowded with merchants in February and March, though in the rainy season the roads are scarcely passable; the surrounding vale of Lerma produces excellent wheat, and abundant pastry, but the poor are tormented with a kind of leprosy. The graziers, who deal in mules, and the merchants, chiefly Galicians, are robust, and the women are remarkable for their beautiful complexions and flowing hair; yet the sex, after twenty-five years of age, is subject to a swelling in the throat, called "Coto," producing an effect very strange and ridiculous, and which is carefully concealed with neckcloths, but attended with no disease or abbreviation of life. This deformity seems to belong to the goitre, a disorder formerly believed to be restricted to the mountains; but as Salta is situated in a valley, it is probably produced by the water or the fogs.

TUCUMANITA, a town of South America, in the province of Tucuman; 10 miles W. of St. Miguel de Tucuman.

TUCUYO. See Tucuy.

TUCUYO, or Tucuyo, a river of Venezuela, which runs into the sea, N. lat. 10° 38'. W. long. 69° 22'.

TUDER, a town of France, in the department of the Ais. It is 11 miles S. of Rurremond.

TUDINGTON. See Tuddington.

TUDELA, a town of South America, in the kingdom of New Granada. Also, a town of Spain, in the province of Leon; 5 miles E. of Valladolid. Also, a town of Spain, in Navarre, on the Ebro; taken from the Moors in 1118; 4 miles S. of Pamplona. N. lat. 42° 11'. W. long. 1° 45'.

TUDER, Todi, in Ancient Geography, a town of Italy, in Umbria, to the S.W., among the mountains. From being a small place it became a Roman colony.

TUDERGA, in Geography, a town of Africa, in Natalia; 32 miles N.N.E. of Eski-Shehr.

TUDES, in Ancient Geography, a town of Spain, on the route from Braccara to Alcorca, between Lusia and Burdja. Anton. Itin.

TUDWAY, Dr. Thomas, in Biography, an ecclesiastical composer, educated under Dr. Blow, at the same time as Turner and Purcell. He was one of the second set of children of the chapel-royal after the Reformation. Soon after quitting the chapel-royal, he was received into the choir at Westminster as a tenor-singer. Tudway, like his fellow-disciples, endeavoured to distinguish himself early as a composer, and has entered into the Collection of Church Music which he transcribed for Lord Harley, an anthem of
his own composition, in 1675, when he was only nineteen, with six more of his early productions for the church, of which the counterpoint is but ordinary and clumsy. The words are likewise often inaccurately accented: he throws the accent of the word triumph upon the second syllable, like Handel; which, though but flighty, is, indeed, the only resemblance between them.

In 1681, at twenty-five years of age, he was admitted to the degree of bachelor of music at Cambridge. And in 1705, upon her majesty queen Anne visiting that university, he composed an anthem, "Thou, O God, hast heard my vows," which he performed as an exercise for a doctor's degree; and, after receiving that academical honour, he was appointed public professor of music in that university.

Dr. Tudway composed an anthem, "Is it true that God will dwell with men upon the earth?" on occasion of queen Anne going to St. George's chapel, at Windsor, for the first time; and, for this, and other occasional compositions, was permitted to style himself organist and composer extraordinary to that princess.

In the latter part of his life Dr. Tudway resided much in London, and was patronized by the Oxford family. The valuable scores of English church music, in fix thick volumes quarto, which are now in the British Museum, No. 7337, were transferred by himself at this time.

It is said that he used to meet Prior, sir James Thornhill, Christian the engraver, Bridgman the gardener, and other eminent artists, at lord Oxford's, once a week; and that sir James drew all their portraits with a pencil, among which is Tudway playing upon the harpsichord. Prior wrote sportive verses under these drawings, which were in the possession of Mr. Weft, the late president of the Royal Society.

Dr. Tudway's picture is in the music-school at Oxford: at Cambridge he was longer remembered as an inveterate punter, than a great musician.

In the time of the duke of Somerfet's chancellorship at Cambridge, during the discontents of several members of that university at the rigour of his government and paucity of his patronage, Tudway, himself a malcontent, and joining in the clamour, said, "the chancellor rides us all, without a bit in our mouths." Nor did the wicked fin of punning quit him even in sickness; for having been dangerously ill of a quinsey, and unable, for some time, to swallow either food or medicines; the physician who attended him, after long debates and difficulties, at length turning to Mrs. Tudway says, "Courage, madam! the doctor will get up Mayhill yet, he has been able to swallow some nourishment!" the doctor cries out, "Don't mind him, my dear, one foul word makes no fummer."

In the Annals of Queen Anne's reign, 1706, vol. v. p. 333, the following relation of Tudway's disgrace at Cambridge is unaccountable, and mentioned nowhere that we know of but in these Annals by Boyer, printed in 1707.

"About the latter end of July, the vice-chancellor of the university of Cambridge, having received information that Mr. Tudway had spoken words highly reflecting on her majesty, he convened the heads of houses at the regent's, where Mr. Tudway was cited to appear, which he did, and the words being positively proved upon oath, they all unanimously found him guilty, and proceeded to sentence, which was solemnly pronounced in the presence of the heads, and entered as an act by the public regifter, as follows: 'That Mr. Tudway be suspended of all degrees taken and to be taken; that he be deprived of his organist's place in St. Mary's church, and of his professorship of music in the university.'

"Mr. Tudway being of King's college, the provost deprived him of that place in the college, and the regifter there likewise entered his deprivation; and the butler and panter took his name off the tables in their offices. The master of Pembroke-hall, where he was also organist, in like manner deprived him of that office, and the regifter there entered it accordingly, so that he was deprived of all he held in the university of Cambridge."

We thought it probable that this sudden paroxysm of disloyalty may have been brought on by the diminution of his patron Mr. Harley; but that did not happen till a year after. In the account which Tudway gives of himself in his prefaces to the Collection of Choral Music which he made for lord Harley, he speaks with the greatest reverence of the queen, ascribes the title of her majesty's composer extraordinary, and speaks of anthems which he composed expressly for her chapels-royal at St. James's and at Windsor. It was perhaps only for the sake of an irresistible pun which offered itself in conversation, that he twitted some sentence or expression into trifon, or at least into disrepect; for he recovered all his places, had the degree of doctor in music conferred upon him when queen Anne visited Cambridge, and lived and died music-professor in that university.

TUE IRON, are cones of cast-iron with an aperture to receive the nozzles of smiths' bellows, to prevent the heat of the fire injuring them.

TUEL, in Geography, a town of France, in the department of the Ardeche; 18 miles N.W. of Viviers.

TUEL, among Sportmen, denotes the fundament of a horse, or wild beast.

TUELCAR, in Geography, a town of Hindoostan; 20 miles N.E. of Travancore.

TUELCO, fawages in the southern part of the American continent, or Terra del Fuego, refiding on the Rio Negro or Colachel, N. of the Moliches or Téuels. (See Patagonia.) The Tuelcos are a numerous tribe. They are divided into horse and foot, and are dreaded by the Indians of the Pampas, who amount to five or fix thousand souls, with about one thousand warriors; and they often join in attacks on the frontier. Their attachment to war is such, that in cafe there be no foreign enemy, one aduar or village of tents will make war against another. Their lance are generally of strong wild reeds, and they are so dangerous on horseback, that the Spanish fufleers cannot sometimes stand the charge. The head is large and makes a terrible wound, by which, as they express it, they may flee through their enemies. In these encounters the Spanish cavalry prefer the fpear, fahre, and pifhets, the carabine and cartouch-box being of little avail. The bala or bowl is of stone or metal, about the fire of those ufed in billiards; this is fixed to a fhirting about a yard long, and at the extremity, by which it is held, there are fon feathers of the American oifrich or caslowary. This fhirt is turned round the head like a fling, and with it they can frike with certainty at a funicient diftance. The bolas or bowls have been adopted by the Spanish foldiery; being two globes of fone or hard fwood fastened at the ends of a fliring, and ferving not only to enthrall the wild horfes and cattle, but alfo to annoy their ene- mies. Poniards, fabres, and cutlaffes are more ufual among these favages than the bow or the fling. During war they are all cavalry; and they chufe for their general the molt robust and valiant of their chiefs. They paint their bodies, particularly the face and hands, with black and red, not only to inspire terror, but to serve as a mark, that they may not be fingled out by the enemy. The tents or hovels of all the tribes of favages are similar, being compofed of hides of horfes, beoves, or other animals, and arranged in streets. The
The tent of the cazique is distinguished by painting and superior arrangement. The common food is the olrich and caffowary, and a kind of armadillo; but their chief regale is the flesh of the mare or foal. In cafe of urgent thirst, they will drink warm blood, which they draw from their horses. The want of food is supplied with bones, grase, and dry dung. The use of clay is universal, in making various sorts of earthenware. They eat salt with their meat roasted or boiled, and are no strangers to some preparations of milk. The Serranos or mountaineers make a paste of carobs, of which they form their bread in loaves, called patios. In Tuede, and in other southern parts, the guanoaco abounds, the flesh of which, with that of a kind of hare, forms the chief food of the Tehuels or Patagonians. But the flesh is eaten half raw. The dreadful boths hexes is a mantle, extending to the mid-leg, with an opening for the arms, and girt with a leathern belt. On horseback, the skirts are drawn together so as to form loose breeches. These clothes are sometimes made of wool, but they prefer the skins of the guanoaco, lion, and tiger; and the Patagonians use those of seals. With the feathers of the olrich they make fans, and ornaments for bridles, flaying them of various colours. These articles they exchange for tobacco, brandy, and the tea of Paraguay, which with them are articles of luxury. Hard-ware and all coarse woollies are much esteemed. The brandy they exhaust at once, making no reserve. The herb of Paraguay, after having served once, is dried, again used, and finally eaten. The tobacco is smoked in a wooden pipe. The caziques or captains have several wives, but monogamy generally prevails. Jealousy is little known, and a payment in kind is the usual penalty for adultery. Homicides and duels are frequent, and these latter open conflicts are deemed honourable; but treton and assassination are capital crimes, and the guilty are put to death with lances or wooden clubs, nor are there any churches to protect murderers. Although all are thieves, they will make war on a tribe that protects robbers. In every tented village, there is a person revered as a forcerer and physician. In the night they have no light but that of fire, which they procure by friction of hard wood. Their conflicts are so violent, that few are seen without marks of deep wounds. The dure of revenge passes from one generation to another. They celebrate their victories with dancing, singing, and drinking; painting and adorning themselves for such occasions. Their number has been greatly reduced by the small-pox. They appear to have no religion, but contemplate with reverence the fun, which they call "Antu," and the moon "Quien." The only ceremony that has any aspect of religion is, when they kill a beecie, their sprinkling some of the blood on the ground, with the formulary, "Give me to eat, me, and my people." They think that the moon confers strength and valour; and when the new moon appears, they present their infants, and say "make them strong." They also pray to Quien for courage and strength to avenge injuries, and destroy their enemies. Ineffecual attempts have been made by popish missionaires for their conversion. The missionaires were slain and the few Christians dispersed. Such is Ellalla's account of these savages.

TUILLA, La., a town of France, in the department of the Dord; 16 miles W. of Aosta.

TVER, a town of Russia, and capital of a government, at the conflux of the Tvertza and Volga. It is the seat of an archibishop, and, according to Bulching, contains twenty churches and convents. Tver, from a small fortres, became a town, and increased in population and wealth to a great a degree, as to become the metropolis of an independ-
matter in solution, or mechanically suspended. Tufa is also formed by the concretion of loose volcanic dust or cinders cemented by water: and also by the concretion of mud thrown out of volcanoes. The disintegration and sub-sequent concretion of basaltic rocks forms a third kind of tufa, which the German geologists call trup-tuff.

Calcareous tufa is formed in large quantities in many lime-flone districts. The waters which issue from calcareous rocks rise to the surface impregnated with a considerable quantity of carbonate of lime. On exposure to the air and light, they deposit their contents on whatever substance is presented to them, and in the beds of rivulets form solid incrustations, sometimes of great extent, and many yards in thickness. The stone thus deposited is always more or less porous or vesicular, and contains portions of plants and fresh-water shells which it has enveloped. This stone hardens by exposure to the air, and is frequently employed in architecture. It is not a little remarkable, that St. Peter's church, and some of the grandest works of ancient and modern architecture at Rome, are formed of a species of calcareous tufa, called by the Italians travertina. In the vicinity of Stroudwater, in Gloucestershire, many of the springs that issue from the feet of the Cotswold hills make large deposits of calcareous tufa. At one station, called the Rock-mill, a bed of this stone, more than thirty feet in thickness, has been worked formerly for building, as appears from some of the oldest edifices in the neighbourhood, which proves the hardnefs and durability of this stone. In Derbyshire, and all the calcareous districts in England, beds of tufa are formed by similar depofitions. Beds of tufa are very common among the mountains which terminate the high valleys of the Alps, and there are promontories of calcareous tufa in the valleys of Switzerland. It was generally supposed that the particles of lime-flone were held in solution by carbonic acid in the water, and that the evaporation of this acid, after exposure to the air, occasioned the depositioh of the calcareous particles. Dr. Kidd, of Oxford, has made some experiments on the solvent power of simple water on carbonate of lime, which he finds to be much greater than was generally supposed. If, says he, half an ounce of distilled water be agitated for a short time in contact with pulverized carbonate of lime, it will be found, on the addition of oxalate of ammonia, that the water will be rendered turbid. It appears, therefore, that when a spring, charged with as much calcareous matter as it is capable of holding in solution, has issued from beneath the earth, the requisite quantity has been diminished by evaporation, the particles of calcareous matter are liberated and deposited.

Calcareous tufa forms so rapidly in some situations, as entirely to close up the passages in canals and aqueducts through which calcareous waters flow. Many hot springs deposit tufa in abundance: the heat appears to affiit the solvent power of water, and to accelerate the precipitation of its contents by a more rapid evaporation from the surface.

The travertine, or tufa, is the most remarkable of all the calcareous tufas, as it has been employed for the construction of some of the prouder monuments of architectural genius in ancient and modern times. Of this stone, Breiflak, an Italian mineralogist, gives the following interesting description.

"The Anio, or Tivorie, which depends from the Apenines of Visuviano and Subico to the call of Rome, crofhes Tivoli before reaching the plain where it unites with the Tiber. All the land through which the Anio passes in Tivoli, whether near the great cascade or the smaller ones, is filled with mafles of a calcareous flone, produced by the deposition of its waters. Sometimes a piece of rufh or reod, or other vegetable matter, is the first point to which the calcareous earth begins to attach itſ elf. It generally depofes in concentric layers, and has the hardneſs and fibrous tifue of alabater. These layers are nevertheleſs separated by a bed of calcareous earth, friable, yellowish, and very fine. At the foot of the mountain of Tivoli, where the Anio enters the plain which extends to Rome, are the quarries of travertine. This calcareous rock is depofed in horizontal beds: its colour is yellowish-white, its grain earthy, fracture uneven, and its hardneſs far furpaffes that of thoſe calcareous mafles produced by the Anio in the neighbourhood of Tivoli. Cavities, where the calcareous flubinance has afsumed a fpary grain and italatich form, are common in travertine. Sometimes thefes cavities have been line filled by a calcareous italatich, whiter, of a finer grain, and harder. This is the origin of thoſe white flones, the regularity of which has caused them to be miſtaken for marine bodies enveloped in its pale. Travertine contains no remains of marine flubinaces, but sometimes it affords fragments of vegetables. It is not doubted but travertine owes its origin to the depofitions of the Anio; depofitions which in the plain may have formed a more solid and compact rock; because its current was lefs rapid, and perhaps its waters more ftagnant in ſeveral places. Not far from the quarry of travertine is the Solfataræ, fo called on account of the great heat of its waters, which abond in sulphuric hydrogen gas, and form a confiderable fediment of calcareous matter. A cardinal d'Este caufed the canal to be dug which conveys the waters of the lake to the Anio. The calcareous depofitions are there fo abundant, that if every three years it was not cleaned out, it would be closed up, notwithstanding its depth and breadth. The water which runs in the canal, on meeting with the bits of rufh or other bodies, covers them with a white calcareous crust, two or three lines in thickness. These incrustations are known by the name of confus of Tivoli. Before this paſfage was opened, the overflowings to which the lake is ſubject were often fo confiderable, that the water spread over the neighbouring grounds, and formed on their ſurface a flothy crust. The waters of the lake were charged with calcareous earth, uniting with thoſe of the Anio in the floods which their union might produce, have themselves contributed to the formation of travertine. I do not think that the Anio alone would have been capable of forming the quantity which is found in this rock."

"Independent of the ſeveral quarries worked by the ancients, there are besides others of ſuch vast extent, that they may supply the demands of many ages. The lake of Solfataræ seems to have greatly aflifted in the formation of this rock. Its water being charged with gaz, explains the great number of hollows which travertine prefents. It proves, that when the rock hardened, a gaz has at the fame time efcape in ſeveral places, which has prevented the approximation of its parts, which were ſtill soft. As often as the interior of a mafs of rocks prefents cavities without any indication of foreign ſubstances which migbt have oppoſed the union of its parts, I conceive their origin may be attributed to the ecape of gaz at the moment when the ſubstance was palling from a ſlate of softneſs to solidity, by cooling or drying. From what I have juft ſewn, it follows that the travertine or rock of Tiber or of Tivoli is a carbonate of lime, formed by the depofitions of the Anio and the Solfataræ of Tivoli. The Roman artificiels give the name of travertine only to the flone taken from the quarry ſituated at the foot of the mountain of Tivoli. The lithologiſts, leſs ſlavels
TUFE, in Geography. See TUFAN.

TUFARA, a town of Naples, in the province of Capitanata; 5 miles W. of Volturna.

TUFECI, a body of the Ipahis, or orfeis, in the service of the grand signor.

TUFÉ, in Geography, a town of France, in the department of the Sarthe; 7 miles S.W. of La Ferté-Bernard.

TUFEN, a town of Switzerland, in the canton of Zurich; 13 miles N. of Zurich.

TUFFENBACH, a town of the duchy of Stiria; 9 miles S. of Judenburg.

TUFFO, in Botany, a name given by the people of Guinea to a plant common in that country, and used in decoction to wash boys with. It is of the sun-flower kind, and is called by Petiver, *flos folium Guineenfis folio fucro furo minor*. It much resembles some of the American sunflowers. Phil. Trans. No. 232.

TUFFOA, in Geography, a town of Africa, on the Slave Coast; 40 miles W. of Affom.

TUFFOONS, in Meteorology. See Tonquin.

TUFT, in Botany and Vegetable Physiology, technically implies a head of flowers, *capitulum*, of which each individual is not fertile, but elevated on either a simple or subdivided partial falk, though all together composing a dense roundish mass. Perhaps tuft would be better retained in English as synonymous to *foliculus*, in which sense it is often practically used, for any small number of flowers, on short aggregate or subdivided falks, springing from the bofoms of leaves, or the divisions of a panicule or corymb. In like manner this term is applied, with more laxity, to little bundles of leaves, hairs, &c. on different occasions.

TUFTED DUCK, in Ornithology. See Tufted Duck, or Fuligula under Duck.

TUFTED Vetch, in Agriculture, a term commonly applied to a perennial fort of this plant, which is highly deserving of cultivation by the farmer, for either meadow or paffure land. It is frequently found mixed with the other grasses, in rather moist ground. See Vetch, and Vicia Cracca.

TUFONBOROUGH, in Geography, a town of New Hampshire, on the north side of Winnipissogee lake; 32 miles N. Concord.

TUG, Bayin, in Agriculture, a sort of carriage used in some districts for loading bayins or faggots, and sometimes other kinds of feld-goods. It is made as to be capable of carrying a hundred and fifty faggots, each four feet in length, and three feet in girth, without being over top-heavy, so as to be liable to turn over in bad roads. It is much used in the weald of Kent, and some other counties.

TUGELOO, in Geography, a town of the plate of Georgia; 95 miles N.W. of Augusta. N. lat. 34° 36'. W. long. 83° 21'.—Allo, a river of the plate of Georgia, one of the branches of the river Savannah, which joins the Kewee; 28 miles N.W. of Petersburg.

TUGGA, a town of Tunis; 20 miles S.W. of Carthage.

TUGGALA, or TEGLA, a town of Africa, in Kordofan; 150 miles W.S.W. of Sennaar.

TUGGEN, a town of Switzerland, in the canton of Glarus; 5 miles S.W. of Utznach.

TUGGURT, a town of Africa, in the kingdom of Tunis; 60 miles S.W. of Tunis.—Allo, a town of Africa, in Nigritia, capital of a district called Wardage; 260 miles N.E. of Tombuctoo. N. lat. 20° 30'. E. long. 6°.
TUGGURT, or TOCORT, a town of Algiers. It was formerly under the protection of the Turks, and paid a tripling acknowledgment. The inhabitants being disgruntled with the conduct of their masters, revolted; but were reduced to obedience, the town taken, and great numbers of them put to the sword; 240 miles S.S.E. of Algiers. N. lat. 32° 40'. E. long. 6° 52'.

TUGIA, in Ancient Geography, a town of Spain, upon the route from Cañuto to Malaca, between Cañuto and Traxium. Anton. Itin.

TUGMA, a town of India, on the other side of the Ganges and near it, with the title of Metropolis, according to Ptolemy.

TUGPINS, in Artillery, are the iron pins which pass through the fore-ends of the shafts of the army carts, to fasten the draught chains for the fore-horses.

TUGUESA, in Geography, a town of South America, in the province of Darien; 50 miles N.E. of St. Maria.

TUGULIAN, a town of Ruffia, near the straits which separate the continent of Asia from America. N. lat. 65° 54'. E. long. 189° 14'.

TUGUS, in Botany, the name of a sweet aromatic plant, growing up sometimes to eight or nine cubits, much esteemed in the eastern parts of the world, and supposed by father Camelli, who very skilfully compared it with the accounts given by Dioscorides and the ancients of their anomum, to be that very plant. The clustered manner of growing of the fruit, together with its oblong shape, and the aromatic taste of the seeds, seem greatly to countenance this opinion.

Each fruit of the tugus contains five or seven seeds; these are of an oblong figure, of a reddish colour, and of an agreeable aromatic taste, but not too acrid. They are much sought after by birds, insects, and field-mice.

The natives seem as fond of these as the ancients were of the anomum; and the young women string them on threads, and wear them as bracelets; sometimes they make the bracelets of the seeds alone; but more usually they string them alternately with pearls, and pieces of red coral: these bracelets they call carops, as well as the fruit itself.

They are suppos'd, when worn by way of necklace, to keep off the effects of a bad air, and to preserve them from the bites of serpents, or the centipes. If not a preservative, they are, however, found, upon experience, to be a very good remedy in the last case, the common application for the bite of this animal being some of the seeds of the tugus chewed in the mouth to a sort of paste.

The chaffer of fruit of the tugus, or true anomum, when newly formed and unripe, somewhat resembles the pseudo-anomum of Garcins; but this likewise wears off as they ripen. For Camelli's accurate description of this plant, illustrated by a figure, see Phil. Trans. No. 248. p. 2.

TUGUZAK, in Geography, a river of Ruffia, which runs into the Uvelka, 12 miles E. of Troitz, in the government of Upha.

TUGWELL PLOUGH, in Agriculture, a light, easy-going, well-contrived implement of this kind, invented by a person of that name. It performs the work well, but not deeply, consequently is improper for weeding lands. It is sometimes termed the Gloucester plough. See Plough.

TUHERE, in Geography, a town of Brasil; 45 miles E. of Paru.

TUHLOIS, a town of Sweden, in Tavalland; 15 miles N.E. of Tavallhus.

TUI, a river of South America, which runs into the Caribbean sea, N. lat. 10° 30'. W. long. 67° 20'.

'Tui, in Ornithology, a name by which some call the parrot. See Psittacus.

The word is originally Brazilian; and the names of several of the Brazilian species of this bird, described by Marcgrave, have the word tui as a part of them; as the tuiete, the tuibara, the tuirica, and the tuinaputejuba. See Tuiete, &c.

TUIAPUTEJUBA, the name of a Brazilian species of parroquet, all over of a green colour, but in different shades, very deep on the wings, very pale, and somewhat yellowish on the belly, and of a faint colour all over the rest of the body; its tail is very long; it is about the size of a fawn; its eyes are large and black, and have a circle of yellowish-green feathers round them, and over the beak, which is black and crooked; and on his head he has one spot of gold-yellow feathers. See Psittacus Pertinax.

TUICEA, in Geography. See Pirom.

TUIETE, in Ornithology, the name of a Brazilian species of parroquet, of the size of a lark, and all over of a pale green colour, variegated with blue; the origin of its wings is blue, as are also the ends of the wing-feathers, so that when the bird sits still, there is, as it were, a blue line feen running down each side; on its rump there is also a blue spot; its tail is but short; its beak is small, crooked, and of a pale red; and its legs and feet grey. See Psittacus Pafserinus.

TUILERIE, or TILERY, French; formed from tuile, tile, a tile-work; a large building, with a drying-place, covered at top, but furnished with apertures on all sides, through which the wind having admittance, dries the tiles, bricks, &c. which the work would crack, before they be put in the kiln.

The garden of the Louvre is called the Tuileries, as being a place where tiles were anciently made, &c. But the term Tuileries does not only include the garden, but also a magnificent palace, whole front takes up the whole length of the garden.

The palace of the Tuileries is joined to the Louvre by a large gallery, which runs along the banks of the river Seine, and has its prospects on it.

The Tuileries was begun in 1564, by Catherine de Medicis, wife of Henry II., in the time of her regency; it was finished by Henry IV. and magnificently adorned by Louis XIV. The garden of the Tuileries was much improved by Louis XIII.

TUIPARA. See Taipara, and Psittacus Tuipara-Tuirobius, in Ancient Geography, a river of Albion, on the western side, which lies along the Irish and Vrgian seas; universally agreed to be the river Tyvi.

TUIS, in Geography, a town of Italy, in Friuli; 10 miles W. of Udina.

TUISCO, or TUSTON, in Mythology, a name given by the ancient Germans to a celebrated person, whom they regarded, by the descendants of his son Man or Mannus, as the founder of their nation, and whom they represented to be the son of the earth, because they were ignorant of his origin. He gave them laws, polished them, established religious ceremonies among them, and obtained such a high degree of reputation, that after his death they ranked him among the gods. One of the principal ceremonies of his worship consisted in finging songs in praise of him. These fongs, according to Tacitus, were very ancient: "Celebrant," says he speaking of the Germans, "carminibus antiquis Tuiftoncm Deum, terra editum, et filium Mannum, origi-
hem gentis conditoresque." Caesar thought that Pluto was
honoured under this appellation. Accordingly he says
(De Bell. Gall. 1. 6.) "the Druids report that the Gauls
are come from Dis or Pluto, who after his death was wor-
shipped by both nations as their father and founder, by the
Gauls under the name of Pluto, and by the Germans under
that of Tuilton, and both of them erected statues to him in
the woods."

Some have ascribed the origin of the name Tuesday to
this deity. See Week.

TUITIRICA, in Ornithology, the name of a Brazilian
parroquet, which is a little larger than the common kind;
all over of a fine beautiful green, but deeper on the back
and wings than elsewhere; its beak is very hooked, and of
a pale red; its eyes black, and its feet blue; its tail is but
a little longer than the wings when closed. This is a spe-
cies much esteemed in the Brazils, as it easily learns to
talk, and forms so tame as to eat out of any one's mouth. See
PSITTACUS Tiriaca.

TUK, in Geography, a town of Charafin; 18 miles N.
of Urghen. — Allo, a town of Egypt, on the left bank of
the Nile; 6 miles N. of Nekkade.

Tuk el Effrat, a town of Egypt; 5 miles N. of
Gizeh.

TUKERA, a town of Hindoostan, in Oude; 14 miles
N. of Lucknow.

TUKKIKARI, a town on the eait side of the gulf
of Bothnia. N. lat. 65° 26'. E. long. 25° 12'.

TULKHTAR, an island in the North sea, near the
east of East Greenland. N. lat. 61°. W. long. 46° 26'.

TUUKOOR, a town of Abyssinia; 20 miles W. of
Tcherkin.

TUKURN, a town of the duchy of Courland; 32
miles E.S.E. of Goldingen.

TUL, a town of Grand Bucharia; 36 miles S.E. of
Anderah.

TULA, a city of Russia, and capital of a government,
on the Upha. According to Butchling, it contains 144
churches and convents. Near it are some iron mines, and in
the city are manufactures of fire-arms, all sorts of cutlery and
other works in polished steel, and leather. The number of
merchants, including shop-keepers, is estimated at 4,000,
some of whom are very rich. The number of inhabitants is
estimated at 30,000: the population is increasing, and be-
ides wooden buildings there are many of stone; 112 miles
S. of Moscow. N. lat. 53° 45'. E. long. 37° 30'.
—Allo, a town of Mexico Proper; 40 miles N. of Mexico.
—Allo, a river of Mexico, which runs into lake Chapala,
near Zamora.

TULACUM, in Natural History, a name given by the
people of the East Indies to a species of the yellow orpi-
ment, of the coarser kind, variegated with red. They
prepare this by several calcinations, and then give it inter-
ally in fevers, and many other disorders, relieving it a
fort of panacea. They say that gold may be extracted
from it, which is not improbable; for it is well known,
that some of the Roman emperors did actually procure
gold from one of the other kinds of orpinent, which is
now found at Goofelear in Saxony.

TULAH, in Geography, a town of Hindoostan, in
Bengal; 31 miles E. of Dacca.

TULBAGHA, in Botany, so named by Linnæus in
honour of the Dutch governor Tulbagh, long resident at
the Cape of Good Hope, who sent numerous plants from
that country to professor Burmann, and furnished Linnæus
with several of its insects, particularly a fine species of
Papilio, which is called Tulbagha, being one of the tribe of
Nymphales; see Syll. Nat. ed. 12. v. 2. 775. Linn. Mant. 2.
Lamarck Ill. tr. 1. 243. Gærtn. t. 16.—Clars and order,
Hexandria Monogynia. Nat. Ord. Spathaceae, Linn. Narcrie,
Jaff.

Gen. Ch. corrected from the Linnæan MSS. Cal.
Sheath of two oblong membranous valves, containing many
flaked flowers. Cor. of one petal, inferior, falver-shaped;
tube cylindrical; limb in fix equal, lanceolate, acute,
spreading segments, shorter than the tube. Nectary of three,
distinct or combined, cloven, acute, equal, feby leaves,
crowning the tube. Stam. Filaments fix, very short, three
in the throat of the tube, three lower down; anthers heart-
shaped, acute. Pist. Germin superior, ovate; style cylin-
drical, much shorter than the tube; stigma turbinate, de-
prefed. Peric. Capsule ovate, with three angles, three
intermediate furrows, three cells, and three emarginate
valves. Seeds few, oblong, obtuse, triangular, comprelfed,
corrugated.

Eff. Ch. Corolla falver-shaped; limb in fix equal seg-
ments. Nectary of three cloven fleses, crowning the tube.
Stamens three in the throat, three within the tube. Cap-
ule superior, of three cells and three valves. Seeds comprelfed.

Mag. t. 836. (T. capensis; Linn. Mant. 2. 223. Jacq.
Hort. Vind. v. 2. 52. t. 115.)—Flowers drooping. Nect-
ary of one leaf, in fix segments, as long as the limb of the
corolla.—Native of low fandy spots, near the town, at the
Cape of Good Hope, flowering about July, and called by the
Dutch colonists Wilde Knoplock, or Wild Garlick. It is
said to be used for disorders of the breath, fewed in milk;
but whether internally or externally, is not recorded. This
species was sent to Kew by Mr. Mallon, in 1774. Jacquin
had it a few years earlier. Root tuberous, with numerous
feby fibres. Leaves radical, erect, numerous, two-ranked,
linear, blotifer, channelled; fheathing at the base. Stalk
solitary, about a foot and a half or two feet high, roundih,
simple, bearing a fcoo embel of from ten to fifteen spreading
or drooping flowers, whose partial falks are near an
inch and a half long. Each flower is rather smaller than a
Harebell, oppressively sweet in an evening. Corolla green
or slightly glauccous. Nectary purpliff-brown. Seeds black.
The whole plant, when ever so slightly bruised, exhalas
a rank smell of garlick, full perceptible in the old dried
specimens of the Linnæan herbarium, whenever they are
touched or moved.

excluding the synonyms. Wildl. n. 2. Ait. n. 2. Thunb.
Prodr. 60.—Flowers erect. Nectary of three distinct
cloven leaves, half as long as the limb of the corolla.—
Native of the Cape of Good Hope, from whence it was
sent by Mr. Mallon to Kew garden in 1795. A smaller
plant than the foregoing, with much narrower leaves.
Umbel, in our only specimen, of seven flowers, whose
corolla is purple, or crinum. Of the colour of the ne-
carry we cannot judge, but its length is about half that of
the segments of the petal.

There can scarcely be a greater example of confusion
than the history of these two plants in the Supplementum
of Linnæus, nor could it be unravelled without the original
specimens. If in the character and description of the fright
we read folia subincarnata, instead of subflabellata, it may
be intelligible. The root moreover, in one specimen, seems
bulbous. All the rest answers tolerably well. In the second
second species, the *leaves* are pericly linear; the *root* by no means fleshy, except its fibres, being exactly like the former; to which the synonyms, even of Lamark himself, undoubtedly belong. A figure of *T. capensis* is much wanted. The plant is now to flower at Kew in April.

3. *T. hypopoda*. Short crowned Green Tulbagia.—Flowers drooping. *Nectary* very short and obtuse. Segments of the limb of the corolla taper-pointed.—This hitherto nondescript flower was planted in 1792, in the Grove of Meffrs. Lee and Kennedy, of Hammeirmith, who received the root from Holland. There can be little doubt of its having been brought to that country from the Cape of Good Hope. The *leaves* are linear and very narrow, about one-fourth the breadth of *T. alliacea*. The *inflorescence*, as well as the posture and general aspect of the flowers, most resemble that species. The *corolla* is green, but its segments more taper-pointed, and full as long as the tube; while the *nectary* is extremely short and blunt, rising but little above the mouth of the tube, and confiding, if we mistake not, of three undivided lobes.—Mr. Sowerby made a drawing of this species at the period above-mentioned, which, though now mislaid, may one day probably be given to the public.

TULBAGIA, in Gardening, contains plants of the tender, herbaceous, exotic kind, among which the species cultivated are, the alliacea or garlic tulbagia (*T. alliacea*); and the cephaceous or onion tulbagia (*T. cepacea*).

Method of Culture.—In each of these sorts, the young plants may be increased by sowings the seeds, sifting the branches, and offsets from the roots.

The seeds should be sown while fresh in pots filled with light mould, and be plunged into a tan hot-bed any time in the autumn or spring feasons, when they will soon begin to grow. And the slips and offsets may be planted and managed in the same way. The young plants in all the cafes must constantly remain in the stove, and have water occasionally given them.

Both these plants afford an agreeable diversity in flower collections.

TULBING, in Geography, a town of Autria; 4 miles S.S.E. of Tulln.

TULCZA, a town of European Turkey, in Bulgaria, on the south side of the Danube, opposite Ismail. In the year 1771, this town was taken by the Russians, and again in 1792.

TULCZIN, a town of Russian Poland; 12 miles S.W. of Bracjow.

TULEBRAS, a town of Spain, in Navarre, on the Quejios; 7 miles from Tudela.

TULIAN, a town of South America, in the province of Cordova; 110 miles N.W. of Cordova.


Gen. Ch. Cal. none. Cor. bell-shaped, inferior, of six ovate-oblong, concave, erect, deciduous petals. Stan. Filaments fix,awl-shaped, much shorter than the corolla, taper-pointed; anthers oblong, quadrangular, erect, feratice, flatish. Pet. Germen superior, large, oblong, bluntly triangular; style none; stigma with three prominent angles, or three divided lobes, permanent. Peric. Capsule triangular, somewhat elliptical, of three cells, and three ovate valves fringed towards the edges. Seeds very numerous, flat, femicircular, lying horizontally over each other, in a double row, with scales of the same shape (or barren seeds) between.


1. *T. sylvestris*. Wild Yellow Tulip. Linn. Sp. Pl. 438. Wildl. n. 1. Fl. Brit. n. 1. Engl. Bot. t. 63. Fl. Dan. t. 375. Curt. Mag. t. t. 1202. Redout. Liliac. t. 175. (T. bononiensis; Gen. Em. 178.)—Flower foliary, somewhat drooping. Leaves lanceolate. Stigma triangular, abrupt, slightly three-crested. Stamens hairy at the base. Petals acute, hairy at the tip.—Native of Sweden, England, Bohemia, Germany, Switzerland, and France, flowering in April. Root an ovate bulb, flattish at one side, prominent at the other. Stem quite simple, erect, round, smooth, twelve or eighteen inches high; leafy in the middle; tapering at the base. *Leaves* about three, alternate, lanceolate, acute, keeled, entire, smooth, somewhat glaucous; the uppermost linear and much the narrower. *Flower* drooping, till it is fully expanded, of a fine golden yellow, sweet-scented; the three outermost petals greenish at the back; all of them elliptical, acute at each end, and tipped with a little white wool at the summit; three innermost fringed with similar wool at the base. *Stamens* yellow; their filaments densely woolly at the bottom; anthers linear-oblong. *Germen* pale yellow or greenish, crowned with a triangular, abrupt, not dilated *stigma*, gradually splitting into three small notches, slightly downy at the top. The Early Yellow Tulip of the gardens, which is figured in the plates of Redouté and Curt. Mag. cited above, can hardly be distinguished from our wild kind, except being larger, with a rather more decidedly three-lobed woolly *stigma*. Our Bohemian wild specimens are intermediate between the two.

2. *T. Celsiana*. Small Yellow Tulip. Redout. Liliac. t. 38. Ait. Epit. 375. Curt. Mag. t. 171, erroneously named *Melan-thiun uniflorum*. (T. biflora; Dom. Cant. ed. 5. 1752.) *T. perifca minima*; Rith. Elyt. v. 2. *T. l. f. s.*—Flower mostly foliary, erect.—Leaves lanceolate. Stigma triangular, with three short, rounded, downy lobes. Stamens slightly hairy above their base. Petals smooth at the tip.—Native of the south of Europe, and of the banks of the Volga. We have known this species for above twenty-five years in Chelsea garden, where it was cultivated by the late Mr. Fairbairn, in pots, amongst alpine plants, protected by a frame in winter, and flowered about May. So little was it understood, that the able writer on this tribe of plants in Curtis's Magazine originally mistook this Tulip for *Melan-thiun uniflorum*; an error corrected at t. 1135 of the same work. It is very nearly allied to the *sylvestris*, but not half so large, and the flower is tinged with red externally. The three innermost *petals* are slightly fringed at the lower part, but all fix are quite smooth at the extremity. The *tbrons* are smooth at the base, though they bear a tuft of hairs a little way above it. Anthers shorter, and more elliptical, than in *T. syl vestris*. Stigma more decidedly three-lobed, rounded, and downy. Capule elliptical. Very rarely there are two flowers on a stem. They have no scent. Each *petal* has sometimes, not always, a green keel.

3. *T.
TULIPA.

3. *T. biflora.* Two-flowered Yellow Tulip. Pallas l. 1. v. 3. 727. t. D. f. 3. Linn. Suppl. 196. Wildl. n. 2.—Stem two or three-flowered, with two spreading lanceolate leaves. Stigma triangular, abrupt, downy, scarcely notched. Petals widely spreading, hairy, like the stamens, above their base; smooth at the tip.—Native of falk deserts about the river Wolga, in a stiff clay soil, along with the lai, but flowering a few days earlier, and of much shorter duration. This is scarcely half the size of *T. Celifana,* of which a two-flowered specimen has sometimes been taken for it. The more simple *fligma,* more elliptical and expanded petals, green at the back, and more oblong *anthers,* are abundantly different from that species. From the *flavoferis* the present is still more unlike, as to size, smoothness of the tips of its petals, and their flat spreading position, to say nothing of an orange spot at their base. The foliage too is full by Pallas to be more glaucous and succulent. The flowers vary rarely to one or three, and are fragrant.

4. *T. Sibthorpiana.* Yellow Greek Tulip. Sm. Prodr. Fl. Grec. Bith. v. 1. 229. Fl. Grec. t. 329, unpubl.—Stem single-flowered, smooth. Flower drooping. Petals obtuse. Stigma club-shaped. Filaments hairy all over.—First observed by the late professor Sibthorp, near the ancient Creifa, now Porto Cavalieri, in Afa Minor; and afterwars, as Mr. Hawkins informs us, on a small rocky eminence near Navarissi, in the Peloponnesus. The root is a white, roundish, depressed bulb, feebly an inch in diameter, surrounded by numerous lateral offsets. Stem a span high, bearing two alternate erect smooth leaves, of which the lowest is largest and most ovate. Flower entirely yellow, pendulous, an inch long. Petals apparently smooth in every part. *Stamen* whitish as well as the *filis.* *Anthers* linear, somewhat curved, as long as the filis. Stigma covered with a brown, black, yellow-edged spot at its base. *Stigma* like the following.

5. *T. Chlafiana.* Red and White Italian Tulip. Redout. Lilac. q. 37. Ait. Epit. 375. Curt. Mag. t. 1390. Sm. Prodr. Fl. Grec. Bith. v. 1. 229. Fl. Grec. t. 329, unpubl.—(T. perica praecox; Cluf. Cur. Polt. 9, with a figure. T. perica, flore rubro, oris albidos, elegans; Ger. Em. 142. T. perica; Park. Parad. 52. t. 53. f. 6. T. variagata perica; Rudd. Elyt. v. 2. 111. f. 7.)—Stem single-flowered, smooth. Flower erect. Petals acute, smooth. Leaves linear-lanceolate. Native of Italy, Sicily, and Periza, flowering in March. About the fize of *T. fyl-voferis,* but the stem bears four or five leaves, gradually smaller and narrower upwards, most glaucous beneath, smooth, somewhat undulate, at the lower one all taper-pointed. The three inner petals are white on both sides, sometimes blunthit; three outer rather larger, acute, white or bluish-coloured within, crimson at the back, with white edges, and a green tip; all of them marked at the base internally with a dark-violet spot, and all quite smooth in every part, as are the violet-coloured *flamae,* and green *filis.* The *fligma* consists of three rounded, compressed lobes, each marked with a downy furrow, like the Garden Tulip hereafter described.

6. *T. flavoferis.* Early Dwarf Tulip. Roth. Catal. v. 1. 45. Curt. Mag. t. 839. Wildl. n. 2. Ait. n. 2. Redout. Lilac. t. 111. (T. Pumilio; Lob. le. 127. Ger. Em. 142. T. Pumilio latifolia; Rudd. Elyt. v. 2. 109. f. 2.)—Stem single-flowered, downy. Flower erect. Leaves ovato-lanceolate; downy above. Petals and filaments smooth.—Supposed to be a native of the souther of Europe. Commonly cultivated in Holland, by the name of *Deu Pan Thol,* from whence the best roots are brought to us. They flower in the open ground in March or April, but in a room, whether in water, sand, or earth, about January. The whole plant is a dwarf stature, and glaucous hue. Flower broad-bellshaped, sweet-scented. Petals scarlet, edged with yellow, more or less acute. *Stigma* like the lai, but rather larger.

7. *T. Oculis folis.* Agen Tulip. "St. Amans Rec. Soc. d’Agr. d’Agen, v. 1. 75." Redout. Lilac. t. 219. Ker in Edw. Bot. Regist. t. 204. (T. bolonifrismo, five bombycina, florae rubro, major; Park. Parad. 51. t. 53. f. 1.)—Stem single-flowered, smooth, as well as the petals and filaments. Flower erect. Leaves ovato-lanceolate, finely fringed.—Found about Agen, in France, and several places in the southern part of that kingdom, flowering in April, and lately imported into England, by Meffrs. Whiteley and Co. of Fulham. This differs from the lai in the particulars contained in our specific character, and more nearly approaches the following. The coat of the bulb is said to be internally woolly. Leaves broad, slightly glaucous. Flower large and bell-shaped, of a fine scarlet red, each petal marked with a broad, black, yellow-edged spot at its base. *Stigma* like the following.

8. *T. Gefzeriana.* Common Garden Tulip. Linn. Sp. Pl. 438. Wildl. n. 3. Ait. n. 3. Curt. Mag. t. 1135. "Sowerb. Fl. Luxur. t. 5. 6. 11. 17." (Tulipa; Rudd. Elyt. v. 2. 102—108.)—Stem single-flowered, smooth, as well as the petals and filaments. Flower erect. Leaves ovato-lanceolate, glaucous, smooth. Lobes of the *fligma* decurrent, deeply divided.—Native of the country bordering on mount Caucasus, where it flowers in April, and from whence Dr. Fletcher has sent us a wild specimen. Conrad Gesner reports, that it was brought from Cappadocia into the European gardens, in 1559. Nothing is now more common or more famous, particularly the many varieties in form and colour, which florists, especially in Holland, have so much cultivated, and in some sales do highly prized. The old botanical writers, in their wooden cuts, represent many of thefe, and almost all the supposed species in Bauhin’s *Patas,* are really, as Linnaeus indicates, mere varieties. In a wild state, the *petals* are crimson, yellowish at the base, about an inch and a half long; by cultivation they increase in size, become streaked in colour, and sometimes assume a jagged and spurred appearance, with every variety of scarlet, yellow, purple, and even green, in their colouring. This we first called the Parrot Tulip, a name now generally adopted. It is Rudbeck’s *T. flava luteo rubra varigata, petalis laciniosi.* A yellow Tulip, the blunt points of whole petals are somewhat recurved, and whose whole flower is of a handsome ovate figure, seems to us possibly a distinct species, but this must be decided by cultivation from seed.

Tulipa, in Gardening, furnishes plants of the bulbous-rooted, flowery, perennial kind, among which the species cultivated are the Gefzeria, Turkey, Cappadocia or common garden tulip (*T. Gefzeriana*); and the wild or yellow tulip (*T. fylvoferis*).

The firl is distinguished from the other fort, according to Martyn, by its subfufent scape, spreading (wheat-yellow) corolla, the caltines of its flowering, and the smallnes of its fize.

And in regard to the varieties, the editor of Miller’s Dictionary observes, that the old authors divided tulips into praecox or early-flowers, and fercinca or late-flowers, with an intermediate division of dubie mutis, doubtful or middle-flowers, which flowered between the two others, and for the
the most part rather belonged to the late-blowers. Modern florists, lie afferts, have almost neglected the early-blowers. The first fort, according to him, are not near so fair, nor do they rise half so high as the late ones; they are chiefly valued for appearing early in the spring; some of them will flower the middle of March, in mild seasons, if planted in a warm border near a wall or other shelter, and others will succeed them, so that they will keep flowering until the general feast for these flowers is come, which is towards the end of April.

It is said that the several varieties of these early-blowing tulips rife to different heights in their stems, and scarcely any two of them are equal. The Duke Van Toll, which is one of the first that appears in the spring, is generally very short-stalked, and the others, in proportion to their earliness, are shorter than those which succeed them; and the late-blowers are all considerably longer in their stems than any of the early-blowers.

The late-blowing tulips producing much finer flowers than the early ones, have engrossed almost the whole attention of the florists. It would be to little purpose to enumerate all the varieties, since there is fearlessly any end of their numbers; and what some value at a considerable rate, others reject; and as there are annually many new flowers obtained from breeders, those which are old, if they have not very good properties to recommend them, are thrown out and defiled.

It is observed further, that modern florists in Holland and Flanders, and our English florists from them, boast a prodigious variety of late-blowing tulips. And that Mr. Maddock of Walworth, in his catalogue of flowers for the year 1792, has no less than about fix hundred and fifty-five of these admired beauties, all ranged under their proper families and colours, with their names and prices: besides the early forts, double tulips, parrot-tulips, French tulips, and breeders. And moreover, that the late-blowers are distributed into five families: 1. Primo Baguet, very tall; fine cups, with white bottoms, well broken with fine brown, and all from the same breeder. 2. Baguet Rigaut; not quite so tall, but with strong stems, and very large well-formed cups with white bottoms, well broken with fine brown, and all from the same breeder. 3. Incomparable Verports, a particular kind of Byblosea; with perfect cups, very fine white bottoms, well broken with shining brown, and all from the same breeder; some of these are from two to five guineas a root. 4. Bybolea; with bottoms white, or nearly so, from different breeders, and broken with a variety of colours: those of the Verports are cherry and rose. 5. Bizarres; ground yellow, from different breeders, and broken with a variety of colours. These barbarous terms, used by the Dutch florists, are, it is said, a mixture of Dutch and French. Baguet is from the French baguette, a rod or wand, so named from its tall slender stem. Bizarre is also French, and the tulips of that family have the name from the variety and irregularity of their colours. Rigauts are probably from the name of some eminent florist, as Rigaud. The other terms are Dutch. Breeders are of one colour, and when broken produce new varieties.

It may be more particularly noticed in regard to each of the principal varieties of these tulips, that they, in every instance, comprehend a great number of intermediate ones, in so far as respects the colours and variegation, which takes place in the flower, notwithstanding each has been originally all of one and the same colour, particularly the seedling-raised bulbs, which after they have arrived to the flowering state, each separate flower is either wholly red, purple, violet, grey, brown, black, yellow, or some other indivi-

dual colour, without any fort of variegation or flripe whatever, consisting simply of one-coloured flowers, with white bottoms, with yellow bottoms; and some with blue bottoms, with purple bottoms, and with blackish bottoms; all of which, while they retain this original flamens in the colour, are, in the peculiar language of the florist, termed whole-blowers or breeders, as each flower is wholly of one and the same colour. But on the bulbs or roots being planted out for one or two years, in properly prepared soils, in order to breed, or defpefe them to gradually produce flowers, that break or run from the original single colour into variegations and flripes, in many different modes and forms, they are denominated breeders or variegated tulips, each different variegation constituting a separate and distinct variety, which molly consists of flowers with white bottoms broken, with brown flripes, with blue flripes, with violet flripes, with rofe flripes, with red flripes, and with some other kinds, separated by breaks of white, and other colours diffoped in various ways; with yellow bottoms, broken with different reds, crimsons, and golden-yellow flakes, and also a variety of other colours; and some with blackish-purple, and other bottoms broken with flripes of dark colours, yellow, and tints of red; so that, particularly in these forts of breeders or variegated tulips, which have white and yellow bottoms, there are, moreover, white and red striped flowers, white and purple striped, white and violet striped, white and rofe striped, white and brown striped, violet and white flaked, red and white flaked, red and yellow flaked; and a great number of other intermediate variegations and flripes, diffoped in an almof endless diversity of modes or manners.

The principal of these diversities or varieties are usually distinguished, in the language of the florist, by the names or titles of some great personage, eminent admirers or cultivators of flowers, places where first grown, or some other great mark of distinction; but there is such a multitude of new varieties raised annually from seed and feeding plants in different places, which are designated by new titles, without any relation to the old ones, and the name of flower so often characterised by a different name, that it would be utterly impossible to give any satisfactory list of the names of such a vast number of continually changing varieties, as has been fuggled above.

It is said that the properties of a fine variegated late tulip, according to the best modern florists, are these: 1. The stem should be strong, upright, and tall; about thirty inches high. 2. The flower should be large, composed of six petals, proceeding a little horizontally at first, and then turning upwards, so as to form an almost perfect cup, with a round bottom, rather wider at top. 3. The three outer petals should be rather larger than the three inner ones, and broader at their base: all the petals should have the edges perfectly entire; the top of each should be broad and well rounded; the ground colour at the bottom of the cup should be clear white or yellow, and the various rich flripes, which are the principal ornament of a fine flower, should be regular, bold, and distinct on the margin, and terminate in fine broken points, elegantly feathered or pencilled. 4. The centre of each petal should contain one or more bold blotches or flripes, intermixed with small portions of the original colour, abruptly broken into many irregular obtuse points. Some florists, it is said, are of opinion that the central flripes or blotches do not contribute to the beauty of the tulip, unless they are confined to a narrow flripe exactly down the centre; and that they should be perfectly free from any remains of the original colour: it is certain that such flowers appear very beautiful and delicate, especially when they have a regular narrow feathering.
feathering at the edge: but it is unanimously agreed, that the tulip should abound in rich colouring, distributed in a distinct and regular manner throughout the flower, except in the bottom of the cup, which should indubitably be of a clear bright white or yellow, free from flamin or tinge, in order to constitute a perfect flower.

The colours which are generally held in the greatest estimation in the variegated or striped sorts of tulips, are the blacks, the golden yellows, the purple violets, the red, and the vermilion, each of which being varied in different ways; but such as are striped with three different colours, in a distinct and unmixed manner, with strong regular breaks, with little or no tinge at all of the breeder, are supposed the most perfect. However, though it is extremely difficult to meet with such as possess all these estimable properties of good flowers of this fort, yet many are found which have sufficient perfection to become of high value as fine flowers. The double and parrot tulips are, it is said, held in no fort of esteem among florists. Among the eight sorts, however, there are many distinct varieties, in so far as regards the colouring of the flowers; as the yellow-flowered, the yellow and red-flowered, the white and red-striped, the white and blush-coloured, besides a great number of intermediate variations. And in the latter, those with long hooked petals of flowers, consisting of yellow-flowered, red-flowered, red-striped, and other kinds.

The second species has the bulb ovate, and gibbous in the shape; the stem is quite simple, nearly upright, round, smooth, leafy in the middle, and attenuated at the base, with the flower always yellow in its colour, but a little greenish on the outside.

And it is further noticed, that it has most of these characters in common with the garden species; but the circumstances that abundantly distinguish this fort are, the narrow leaves, the nodding flower, the hairiness at the base of the filaments and on the tips of the petals, and especially the simple obtuse form of the stigma, which is totally different from that of the garden tulip: the flower too is fragrant; the pollen yellow, not black; and the anthers remarkably long. But in the Flora Danica they are represented as short and round.

As this sort of tulip is of much inferior beauty to those of the other and several varieties, it is of course not nearly so much known and cultivated in flower-gardens, though it was formerly held in considerable estimation by some, before the Turkey kind became so very general; and it is still to be found in some of the older gardens of this nature, and is not undervaluing a place in those of the modern ones, among the other sorts of tulips and spring flowers, for the purpose of its early blooming and increasing the variety.

Method of Culture.—All the different sorts of tulips may be increased by offsets from the roots, and by sowing seeds to produce new varieties. The offsets should be separated from the old roots every year in June, especially for the fine sorts, on taking them up when the flowering is over, planting them in nursery-beds, in rows six inches apart, and to the depth of three, four, or five in the beginning of autumn, to remain for one or two years, until they attain the flowering state, and are proper for being set out regularly. They may also, in the old root, be planted in beds, or in the borders or other parts where they are to remain and blow, in patches of four or five, placed regularly; and to have a succession, they may be planted at different times; they are usually planted with a blunt dibble: the new roots should always be planted by themselves.

In this way the most approved sorts are propagated and continued always the same, and the flowers of any good varieties multiplied and increased as may be necessary and convenient to the growers of them.

The early and late sorts should likewise be each put in, in places by themselves; and it is advised that the roots of the early-blowing sorts should be planted the beginning of September, in a warm border, near a wall, palings, or hedge; as, when they are put into an open spot of ground, their buds are in danger of suffering by morning frosts in the spring. The soil for these should be renewed every year, where it is intended to have them fair. The best soil for this purpose is that which is taken from a light sandy pasture, with the turf cut amongst it, and to this should be added a fourth part of sea-fand. This mixture may be laid about ten inches deep, which will be sufficient for these roots, as they need not be planted more than four or five inches deep at the moat.

The offsets should not be planted amongst the blowing roots, but in a border by themselves, where they may be let pretty close together, especially when they are small; but those should be taken up when their leaves decay, in the same manner as the blowing roots, otherwise they would rot if the seafon should prove very wet, as they are not so hardy as the late blowers, nor do they increase half so fast, so that more care is requisite to preserve the offsets of them.

When these sorts come up in the spring, the earth upon the surface of the beds or borders should be gently tilled and cleared from weeds; and as the buds appear, if the seafon should prove very severe, it will be of great service to cover them with mats, for want of which many times they are blighted, and their flowers decay before they blow, which is often injurious to the roots, as it also the cropping of the flowers soon after they are blown; as their roots, which are formed new every year, are not at that time arrived to their full magnitude, and are of course deprived of proper nourishment or support.

When these flowers are blown, if the seafon should prove very warm, it will be proper to shade them with mats, &c. in the heat of the day; and when the nights are frosty, they should be covered in the same manner, by which means they may be preferred a long time in beauty: but when their flowers are decayed, and their feed-veilgs begin to filesystem, they should be broken off just at the top of the stalks, as, when they are permitted to feed, it injures the roots so greatly.

In these sorts, when the leaves are decayed, which is usually before the late-blowers are out of flower, their roots should be taken up, and spread upon mats in a shady place to dry; after which they should be cleared from fifth, and put in a dry place where vermic cannot come to them, until the sea for planting them again, being very careful to preserve every fort separate, that it may be known how to dispose of them at the time of planting.

For this purpose, it is a good method to have large flat boxes made, which are divided into several parts by small partitions, each of which is numbered the same as the divisions of the beds; so that when a catalogue of the roots is made, and the numbers fixed to each fort in the beds, nothing more is necessary in taking the roots, but to put every kind into the division marked with the same number in the bed. This saves a great deal of trouble in making fresh marks every time the roots are taken up, and effectually answers the purpose of preserving the kinds separate and distinct.

In raising these plants from seed, it is, from the time of sowing, seven or eight years before they produce flowers; and after all, they at first appear only single-coloured, often requiring two, three, or more years longer before they break.
TULIPA.

into different colours or variegations; so that the tediousness of raising seedling tulips to a flowering state often deters from the undertaking. It is, however, the method by which all the fine varieties were first obtained, and by which new varieties are still annually gained; as many persons sow some every year, in expectation that after the first fix or seven years a new flow of flowers will be produced, out of which new many varieties may annually discover themselves in each parcel. It is by this process the Dutch are so famous for furnishing such an infinity of fine varieties, supplying almost all other countries.

In effecting this business, great care should be used in the choice of the seed; the bell is that which is sowed from breeders which have all the good properties before related, for the seeds of striped flowers seldom produce anything that is valuable; and the best method to obtain it is to make choice of a parcel of such breeding tulip roots as are willed to save seeds from, and place them in a separate bed from the breeders, in a place where they may be fully exposed to the sun, planting them at least nine inches deep, as when they are planted too shallow their items are apt to decay before their seed is perfectly ripened: the flowers should be always exposed to the weather, as when they are shaded with mats, or any other covering, it prevents their perfecting the seed. About the middle of July, according to the season, the seeds will be fit to gather, as shown by the dryness of their stalks and the opening of the seed-veil, at which time they may be cut off, and the seeds be preserved in the pods till the season for sowing, being careful to put them up in a dry place, otherwise they will be subject to mould and be rendered useless. The beginning of September is the proper season for sowing the seed; for which there should be provided a parcel of hollow seed-pans, or boxes, which should have holes in their bottoms to let the moisture pass off; these should be filled with fresh sandy earth, laying the surface very even, upon which the seeds should be sown thinly as regularly as possible; some of the name light sandy earth being sifted over them, about half an inch thick. These boxes or pans should be placed where they may have the morning sun till eleven o'clock, in which situation they may remain till October, at which time they should be removed into a more open situation, where they may enjoy the benefit of the sun all the day, and be sheltered from the north winds, where they should remain during the winter seaon; but in the spring, when the plants appear with grassy leaves, they should be again removed to their first situation; and if the season be dry, they must be refreshed with water while the plants remain green; but as soon as their tops begin to decay, no more should be given. The boxes should be placed in a shady situation during the summer season, but not under the drip of trees. The weeds and mows should be kept constantly cleared off from the surface of the earth in the boxes, and a little fresh earth be sifted over them soon after their leaves decay; and at Michaelmas they should be fresh-earthed again, and as the winter comes on, be again removed into the sun as before, and treated in the same manner, until the leaves decay in the spring, when the bulbs should be carefully taken up, and planted in beds of fresh sandy earth, which should have tiles laid under them, to prevent their roots from floating downward, which they often do when there is nothing to stop them, and are destroyed. The earth of these beds may be about five inches thick upon the tiles, which will be sufficient for nourishing the roots while young. The distance of planting them need not be more than two inches, nor should they be planted above two inches deep. Toward the end of October it will be proper to cover the beds over with a little fresh earth about an inch deep, which will prevent the roots from the frost, and prevent moths or weeds from growing over them; and when the winter is very severe, it may be proper to cover the bed either with mats or peat-burn, to prevent the frost from entering the ground, as these roots are much tenderer while young, than after they have acquired strength. In the next spring the surface of the ground should be again gently tilled to make it clean, before the plants come up; and when the spring proves dry, they must be frequently refreshed with water in small portions during the time of their growth; and when the leaves are decayed, the weeds should be taken off, and the beds covered with fresh earth, as before, which should also be repeated again in the autumn. When the bulbs have been managed in this way two years, they should in the summer following, when their leaves decay, the roots being by that time considerably improved in growth, be again taken up, and planted in a fresh prepared bed, in drills three or four inches asunder, in which to remain two years longer; then, at the decay of the leaf, be again planted out into fresh beds, in rows as before, where they should be let remain to blow, being afterwards ordered as the flowering bulbs. When they are in full flower, they should be examined, in order to mark such of them as discover the best properties, that they may be separated from the others at the proper lifting season, and be replanted in beds by themselves for breeders; removing them annually at the proper season into different beds of opposite or contrary soils, as one year in poor hungry earth, the next in a much richer mould; continuing them till they break into variegations and tripes of different colours, which are the only modes by which it can be affixed. When the leaves and flower-items are decayed and withered, and the roots have ceased growing and drawing nourishment from the earth, it is the proper period for lifting or taking the old roots out of the earth, to preserve them till autumn for planting, being preferred in the manner which is directed for them above.

It may be noticed in addition, that all the sorts and varieties of tulips will grow pretty well and succeed tolerably in any soil where the earth or mould is moderately light and dry in the winter season, but that they delight most in such as are of a sandy vegetable earthy nature, and in an open sunny exposure. They are most injured by such as are of a retentive and wet damp quality, in which it is constantly necessary to have the beds in which they are put raised four or five inches above the common level of the rest of the ground. It is customary however, with florists to have the beds for this purpose composed of and prepared with different kinds of materials of the sea sand and earthy sorts, particularly for their finest kinds. But such trouble and expense are often quite unnecessary, as they succeed well enough without it; only care must always be taken not to plant them more than one or two years together, especially those fine sorts, in the same earth or bed, without changing the quality of the soil, in some measure, either altogether or in a partial manner, by some removal of the old and addition of new fresh portions of light mould, garden earth, or compost, or by a complete clearing away of the former earthy matter and the supplying of wholly new; thus rendering the blow of the tulips more strong as well as fairer. But as this is only practised for the particularly fine sorts in beds, those which are to be planted in the open border may be placed any where in the common soil, without any fear of their not flowering well.

In preparing the beds, or other parts, for the more choice sorts, the ground is to be well dug to the depth of one or two spits, and they are to be formed three or four feet in width, having alleys or intervals of one or two feet width
TULIPA.

width between them: the top or surface of each bed being raked quite even and smooth, in order for the bulbs or roots being put into it.

When they are in this state of readines for being planted, a dry day is to be selected for setting out or planting the bulbs or roots, which is to be done in rows, either in the bedding method, drilling in rows, or that of dibble-planting, a blunt-edged instrument being employed in the lathe, by way of making the holes for the bulbs as sufficiently wide below as above, and perfectly clean quite to the bottom, making out the lines lengthways of the beds at eight or nine inches distance from each other, the roots being then set in finely to the depth of three or four inches, and at the distance of six from each other in the lines. The work of planting being thus finished, the upper parts of the beds are to be raked even and smooth, which completes the whole.

The tulips intended for the open borders may either be planted in a regular line at a foot or eighteen inches distant from the edge, irregularly along it, or be disposed in separate small patches and clumps of three or four roots together in each, occupying spaces of about eight inches, some of which being placed more forwards, and others backwards, in order to afford greater diversity and variety.

When the old roots or bulbs have been thus planted out in the autumn, as they bear the winter well, nothing further is required in their culture until the vernal and summer months, when they should be preferred in quite a lean state of growth, and in some cafes the buds of the more choice sorts in the beds be sheltered and guarded from cold and severe weather in the nights, and at some other times by mats, supported archways on hoops, or other convenient means, though this is seldom absolutely necessary; or when the bedded sorts are come into flower, to preserve their beauty and duration, to shade and screen them from the excessive noon-tide sun, heavy rains, and stormy winds, by an awning of canvas or mats raised across the beds, and, in some instances, formed in a tent-like manner, in order to walk under and view the flowers at pleasure; but the flowers will blow in great perfection without these coverings and trouble, only by means of them these fine sorts will blow and continue for a longer time in full beauty than would be the case if they were openly exposed. However, as soon as ever the flowers begin to fade, all such coverings should be carefully removed, in order to permit a free circulation of air, and have the full influence of rains, dew, &c. for the nourishment and support of the root-bulbs. But when the flowering is quite past, and the flowers begin to die away, it is necessary and proper to cut off the heads or feed-velvets, especially of the fine sorts and varieties, that the roots may not be deprived of the proper quantity of nutriment for their full and perfect growth.

And in the middle of summer, when they are at rest, or have ceased growing, and the flower-velvets and other parts are quite decayed, it is time to lift or take up the old bulbs or roots, which should be done for the most part every year for the fine sorts, and every other year for the other kinds, not only for the purpose of separating the suckers or young bulbs, but also for preferring both them and the old ones without any fort of growth out of the ground until the autumn, which is the time of planting them again in fresh or newly prepared beds for the future year's bloom. At this period, therefore, when the weather is dry, the work of lifting or taking them up should be begun, which should be done with a garden-trowel, as being the best and easiest method, digging them up finely in a perfect and careful manner; and afterwards spreading them out in a shady, dry, airy place, where they may remain for a few weeks, without being acted upon by the sun or wet, and then become gradually dry and hardened; when the suckers or young bulbs, the adhering earth, and the outer decayed skins or bulks, should be taken away and removed from them, after which both the old and the young offset bulbs should be again exposed to further drying, and more effectual hardening, in the same or other more proper situation, and be ultimately put safely into some dry receptacle separately, to be kept until the proper season of planting them out again takes place. Each fort of bulbs should be planted out in a separate manner, as already noticed. See BULB and ROOT.

It may be remarked, that although the tulip may be said to be a plant of the perennial kind, yet that after the bulb of it has arrived at the flowering state or stage, the fame individual root or bulb does not always remain and continue to flower anew, but gradually wears or waifes away, as is evident by its remains at the lifting season; but previously to its dissolution it affords from its fides a new supply of suckers or young bulbs, which perpetuate the kind, one of which, being large and similar to the parent bulb, is capable of flowering equally strong for the succeeding year; so that at the end of many years, that which is often supposed to be the fame individual bulb, is in reality in very way another, or new one. In common, it is, however, termed the old bulb or root, by those who are unacquainted with the nature of such roots.

All the sorts and varieties of the tulip have flowers, which are succeeded by plenty of ripe seed in the later summer months, that is contained in the cells of an oblong capsule, the different seeds being placed on each other in double rows.

In order to fave good feed, some heads of the bell and floutell plants of each fort should be selected and left in a proper situation to blend until they become in a perfectly ripe state, which is easily known by the flets taking on a fine hard dry appearance, and the parts containing the seeds opening themselves, when they should be cut away, and the feed be taken out, and wrapt up carefully, or left to remain in them until the time of its being sown, preferring it in either way quite dry and free from any thing of a moulder nature.

In order to promote the acquisition of the vall and wonder ful diversity of colouring which often takes place in tulips, and which, in many instances, is effected in a great measure by nature only, the natural process is sometimes greatly affisted and expedited by means of proper culture and management. Thus, in the firt place, when the young feeding bulbs of the whole blowes or breeder have reached the full size, and have flowered once, by transplanting or removing them into beds of any fort of weak, poor, unfruitful earths, which, by their want of nutrient properties, may check and restrain the natural luxuriant tendency of the plants, and induce a weak enfeebled general growth, a change may be gradually produced in their general state, whereby they may break out into new variegations in the firt, second, or third years. And accordingly, as this happens, they should be planted out into beds of good earth, as has been directed above.

Another means of affisting nature in accomplishing this object is, that of making as great a change in the quality of the soil as possible, as if they were this year planted in a weak poor fort of earth, they should in the following be set out in a highly rich garden mould, and afterwards in a compost of several sorts of earth: or they may be removed and transplanted from one part of a garden to another; and
into different gardens; or in any other similar methods. All these various ways contribute in a great degree to affix in, and promote the production of, this desirable variety of colours and variegations.

The roots of all the sorts and varieties of the tulip are kept for sale in large collections by the nursery and seedmen, who have them every year in great quantities from Holland and other places, each variety of which is distinguished by some appropriate name, as has been already noticed, and arranged in regular catalogues, the prices being charged in proportion to the estimation in which they are held, which were formerly very extravagant, but are now more moderate, on account of their abundance, as from seven or twelve shillings, to as many pounds the hundred, and not unfrequently considerably more for scarce, curious, and capital sorts. The most eligible and proper season for buying or laying in a collection is in the early part of the autumn, as from August to November.

For the main collection of flowers to blow in the spring and early summer, the most proper time of planting the roots or bulbs is in the autumn, from the end of September to December; but to have a later bloom in succeffion, some may be planted out about the close of the year, and in the two beginning months of the new one. These later, however, will seldom grow so strong as those of the autumn planting.

The roots of the late sorts of tulips may be planted in any common beds, or in the borders, as they are not much liable to be injured by bad weather. But those of the finer or more valuable sorts of the early, as well as the late kinds, are in general, for the most part, disposed together, as they have been, in beds by themselves, in order to exhibit a grand blow, and be defended in the manner which has been explained.

However, some of the inferior common sorts, and even any of the capital varieties, may occasionally be distributed about the ordinary borders, in an affembly with other spring flowers of the bulbous-rooted and other kinds, in the ways which have already been directed, where they have often a fine effect when in their blowing state.

The double variety of the common tulip is very beautiful, though not held in such estimation by the florist as the common single variegated sorts, from their not pollelling that profusion of variegations in their colours, or such a regularity of stripes. They, however, exhibit an elegant ornamental appearance in their upright, tallish, firm stems, and the crowns of large double flowers at the tops, formed somewhat as in those of the double peony, but far more beautiful in their diversity of colours, variegations, and stripes of white and red, or yellow and red, &c. On these accounts they certainly deserve to be cultivated either alone in beds, at a little distance from the other sorts, for the sake of increasing the variety; or in patches about the borders, in an affembly with the common large variegated tulips, as blowing nearly about the same time in the later spring months.

The early dwarf sorts are the most proper for forcing for early blooming, and also for being placed in glasss, in rooms, &c.

These sorts are sometimes rendered more early in their blooming than would otherwise be the case, by planting the roots or bulbs in pots or boxes in the autumn or winter season, and placing them in the floor, or a hot-bed of tanner's bark, thereby bringing them into bloom in the month of January, or sooner, and continuing succeffions of them, until the natural ground blooms are ready. A quantity of bulbs is also sometimes placed upon phial-glacies containing water, a single bulb in each, during the same season, which are then put into a warm light room in the house, near the windows, or into a greenhouse or flore, in which way they often flower very agreeably in the winter and early spring, as they are well suited to such modes of cultivation.

These sorts of roots or bulbs are likewise kept by the nursery and seedmen for the purpose of sale in pretty large collections of the different kinds, under titles which are chiefly French and Dutch, as may be seen by the catalogues of these flowers which they exhibit.

Roots of these sorts may be planted out in any good, light, rich, earthy soil, where the situation is warm at the season, and in the manner stated above, in speaking of the general culture of tulips, when they will rise soon in the vernal months, and reach the blooming state about March, continuing until the late tulips come into flower. They, however, succeed best when allowed a sheltered sunny situation, as they rise and flower a few in the spring while the weather is often cold and pinching. Some of them look extremely well in the fronts of warm borders, in small patches, in affembly with alenies, ranunculums, and other similar kinds.

The second species may be managed in the same manner as those of the common sort, in so far as its culture is concerned, in much the same way, having nearly the same treatment in every respect.

They are all highly ornamental flowers, from their much varied and most beautiful colours; but those of the common garden sort, and its numberless varieties, are the most generally introduced, being admirable ornaments for beautifying the various flower borders and other parts of gardens and pleasure-grounds during some weeks in the spring and summer seasons.

TULIPIFERAR, in Botany, the Tulip-tree; see LIRIODENDRON; see also MAGNOLIA, some of whose species are called Tulip-trees.

TULIUSCHANA, in Geography, a river of Russia, which runs into the Podkamenka Tungufka, N. lat. 61° E. long. 97° 34'.

TULIKOWO, a town of the duchy of Waafow; 16 miles N.N.E. of Kalish.

TULL, Jethro, in Biography, a distinguished agriculturist, was a descendant of a respectable family in Yorkshire, educated at one of the universities, and admitted a barrister of the Temple towards the commencement of the 18th century. Returning from the tour of Europe, in which his attention was particularly directed to agricultural subjects, he married, and settled upon a paternal farm in Oxfordshire, which gave him an opportunity of prosecuting a variety of experiments in husbandry. Upon his return from France and Italy, which he was under a necessity of visiting on account of his impaired health, and with a fortune also impaired, he took a farm near Hungerford, in Berkshire, where he purposed his plans for improved cultivation. His grand principle was, that labour and arrangement would supply the place of manure and following, and raise more grain at a less expense. (See Horing, Husbandry, and Drilt-Husbandry.) Tull, in 1731, printed "A Specimen" of his system; and in 1733, "An Essay on Horf-hee Hoing Husbandry," fol. which was translated into French by Du Hamel. He purposed his system till his death, which happened in Jan. 1740.
into which the river Munry discharges itself, and which is opposite to the northern part of Achill island.

TULLAMORE, a post-town of the King’s county, Ireland, so called from the river Tullamore, which divides it into two nearly equal parts. This is a neat thriving town, owing partly to the well-directed exertions of the proprietor, lord Charleville, whose demeine extends to the suburbs, and partly to the advantage of the Grand Canal passing close to it. Here are a barrack and market-house; and, what is of still greater importance, the linen manufactory has been introduced with a prospect of success. Tullamore is 46 miles W. by S. from Dublin.

TULLE, a city of France, and capital of the department of the Corrèze; before the revolution the capital of Lower Limousin, and fee of a bishop suffragan of Bourges; 58 miles S. of Paris. N. lat. 45° 16’. E. long. 1° 51’.

TULLEN. See Toolen.

TULLINS, a town of France, in the department of the Aisne; 12 miles N.N.E. of St. Marcelin.

TULLIS CREEK, a river of Virginia, which runs into the Potomack, N. lat. 39° 33’. W. long. 78° 2’.

TULLN, a town of Austria, on a river of the same name; the fee of a bishop, suffragan of Paffau; 13 miles W.N.W. of Vienna. N. lat. 48° 18’. E. long. 16° 3’—Allo, a river of Austria, which runs into the Danube, at the town of Tulln.

TULLOARGAUM, a town of Hindoostan, in Vifa-pour. In 1779, when major-general Egerton was marching towards Poona, this town was burned by the Maharratts themselves; 12 miles N.W. of Poona.

TULLOCH-ARD, a mountain of Scotland, in the south-west part of Ross-shire. In feudal times, by burning of pitch on this mountain, all the tenants and valettis of Scarforth assembled at the castle of St. Donan in twenty-four hours.

TULLONG. See Pulo-Tullong.

TULLOON, a town of Hindoostan, in the cincr of Sirhind; 35 miles W. of Sirhind.

TULLOW, a post-town of Ireland, in the county of Carlow, pleasantly situated on the river Slaney, over which it has a bridge of six arches. The castle, which was deemed formidable, and which was reduced by Cromwell, has been converted into a barrack. Here are a neat church and a good market-house; and near the bridge the ruins of an old abbey, which, with all its possessions, was granted by queen Elizabeth to Thomas, earl of Ormond, in 1557. Tullow is 38 miles S.S.W. from Dublin.

TULLUM, Toul, in Ancient Geography, a town of Gaul.

TULLUS HOSTILIUS, in Biography, was selected king of Rome, after the death of Numa, in the year B.C. 672. He began his reign with rendering himself popular, by dividing a portion of the regal lands among those who had no such property; but deviating from the course pursued by his pacific predecessors, he contrived by a stratagem to engage the Romans in a war with the Albans. The Albans declining a combat, Tullus proposed an union between Rome and Alba, and for the accomplishment of this object, that the principal Alban families should settle at Rome. To this proposal the Albans objected, but it was agreed that the superiority of either city should be decided by a combat between three persons of each city. (See CURIAIHM and HORATIHM.) The superiority of Rome having been thus determined, Tullus proceeded to punish the Fidenates for their alleged misconduct in the Alban war; and having summoned Mettius Fufcitus, the Alban dictator, to join him with the troops of his nation, the dictator apparently complied, but in an engagement that ensued proved treacherous. The Romans, however, obtained a complete victory. Tullus and Mettius practised the same kind of ill-treatment: whilst the former courteously received the congratulations of the latter, he sent a body of troops to demolish the city of Alba in the absence of its soldiery, and at the same time ordered the Roman and Alban troops to attend him in his camp unarmed, but he privately instructed the Romans to provide themselves with swords under their garments. Charging Mettius with perfidy, he ordered him to be seized, and to be fastened between two chariots, and thus to be torn to pieces, as an emblem of his attempt to dissolve the union of the two states; the frith and laft example, says Livy, of a punishment in which little regard was paid to human laws! His accomplices were also put to the sword; the rest of the Albans were conveyed to Rome, and henceforth formed one people with the Romans. Alba, with the exception of its temples, was razed; and for the accommodation of the new inhabitants, mount Cælius was taken into the compacts of Rome.

Having subdued the Fidenates, Tullus made war against the Sabines and conquered them, and then summoned the Latin towns dependent upon Alba to acknowledge the supremacy of Rome, whose country, on their refusal, he invaded. In his old age, however, he exchanged his military prowess for the weaknefs of superstition; and terrified by prodigies and apprehended tokens of the displeasure of the gods, he had recourse to a variety of expiatory rites. The manner in which his life terminated has been differently represented. Some fay that his palace wastruck by lightning, which destroyed him and his family; whilst others have charged his murder on Ancus Martius, his successor, who is also suspected of having set fire to his palace. He died, however, after a reign of thirty-three years, during which he enlarged the size and population of Rome, with little addition to its territories. Livy. Dionys. Hal. Gen. Bog.

TULLY, in Geography, a town of Hindoostan, in the cincr of Ellichpour; 20 miles E.S.E. of Ellichpour.

TULLY, a township of New York, on the S. line of Onondaga county, 14 miles S. of Onondaga; bounded N. by Otisco, E. by Fabius, S. by Cortland county, W. by Spafford, which was erected from the W. half of Tully in 1811. It is now formed of the N.E. quarter of the military township of Tully, the S. half being Preble, in Cortland county. Its waters are small, being head-streams of Onondaga creek, and also of Thongniocoa creek, of Chenango, of the Susquehanna, &c. The whole is well watered by springs and brooks. Like Spafford, this town has ridges of hills on the E. and W. boundaries, but its valleys are extensive, rich and productive. Tully flats are much admired. The settlements commenced about 1796, and the lands are held by right of soil, principally by farmers from the eastern states. In 1810, the population was 1092, and the senatorial electors 67; but these aggregates are now diminished nearly one-half by the creation of the town of Spafford from the W. part in 1811. Tully is now about five miles square.

TULLYCLEA, a small river of Ireland, rising in the southern part of the county of Tyrone, and discharging itself into lough Erne, a little to the north of Devenish island.

TULMERO, a town of South America, in the province of Venezuela, situated in the vale of Aragua, two leagues from Maracay. This town is modern, well built, and the residence of a number of planters; but it is peculiarly the abode of all the officers, factors, and persons employed in the administration of the tobacco cultivated in its vicinity,
vicinity, on account of the king. Here are a landfome church, a vicar for the religious department, and a lieutenant of justice for the civil. Its population consists of 3000 persons.

TULOMA, a river of Ruffia, which runs into the La-
doga lake, 32 miles N.W. of Onelnet.

TULON, a town of Thibet; 45 miles E. of Tankia.

TULONIUM, in Ancient Geography, a town of the in-
terior of Spain, belonging to the Varduli, according to Ptolemy. In the Itinerary of Antonine, this place is on the route from Alturca to Burdigala, between Sulflatum and Alba.

TULOS, a word used by some medical writers to ex-
cuss a callus.

TULOSTOMA, in Botany, so named by Peron, from tuba, a sward, or other protuberance from the skin, or filfus, and squam, the mouth; which is exactly descriptive of the little orifice, by which the powdery feeds of this fungus are dis-

Eff. Ch. Receptacle conciitous, globular, falked, dis-
fching the powdery feeds, intermixed with hairs, by a cyndrical cartilaginous mouth.

colour, fixed by fibrous annual roots. Head globofhe, smooth, half an inch or more in diameter, with a small, regular, orbicular orifice at the top, whose edges are flat and cartilaginous.

2. T. squamosum. Scaly Stalked-Puff-ball. Perf. n. 2. (T. brumale 2; ibid. Lycoperdon pedunculatum; Sowerb. Fung. t. 206, the difected figure, and fome near it. L. pedunculatum axifereum; Buillard Fung. v. 1. 161. t. 471. f. 2. L. album mammofeo, pediculo longo et veluti squa-
mofo, ac futilolo, donatum; Mich. Gen. 218. (p. 97. f. 7.)—Stalk fally, bollow, with a central thread. Orifice pro-
minent, tubular.—Found by Micheli, on banks near Flo-
rence. Mr. Sowerby received his specimens from Norfolk, by favour of the Rev. Dr. Sutton. Buillard seems to have gathered his in France. We preume this must be a diftinct species, well marked by the above characters.

3. T. giganteum. Great Stalked-Puff-ball.—Stalk woody, clothed with upright facles.—Gathered at Owlyheke, by Mr. Archibald Menzies. Mr. Sowerby fays this is "a gigantic representation, as it were," of the common kind, the flalk being twice as long, and four times as thick, more woody, and fometimes truly quafmofo, the fquame pointing upwards. The fize of the head is in proportion. We know this fungus only from Mr. Sowerby's incidental account, but have no doubt of its being a diftinct species, in which more particular investigation might discover more defcrive characters; and on this account we record it here.

TULOUR, or Tanna Labe, in Geography, an island in the East Indian sea, about 90 miles in circumference. N. lat. 4° 45'. E. long. 124°.

TULP, Nicholas, in Biography, an eminent physician,
was the fon of an opulent merchant, and born at Amfterdam, in 1593. Having studid and graduated at Leyden, he settled in his native city, and rose to a high
rank, not only in his profeflion, but as a citizen. Under
the latter denomination he was distinguished by the high
posts which he occupied, and by the favours which he ren-
dered to his country. As burgomaster, to which station he
was advanced in 1652, he refited the invasion of Holland
by Lewis XIV. in 1672, and thus saved his country; on
which occafion a medal was struck to his honour with this
motto, from the Axeide, "Vires uter forte quem feneet." Having completed his 80th year, he died in 1674. Tulp's
"Observationum Medicarum Libri tres," 1642, 12mo. have been feveral times reprinted, and contain many valuable
physiological remarks. He is faid to have been among
the first who oberved the lactic acid. Haller. Eloy.

TULPEHOCKON, in Geography, a township of Penn-
sylvania, in the county of Berks, which, together with
Bern and Bethel, contains 5800 inhabitants.

TULPEHOCKON Creek, a river of Pennsylvania, which runs into the Alleghany, N. lat. 45° 22'. E. long. 76° 58'.

TULSK, a poit-town of Ireland, in the county of Ros-
common. The magnificent and indiferminate ruins of cables and churches, bear ample testimony to its former
importance, but it is now a wretched village. Tulsk was
repreented in the Irish parliament, but loll its privilege at
the Union. It is 754 miles W.N.W. from Dublin.

TULSKOE, a government of Ruffia, bounded on the north by Moskvokata, on the eafh by Riazankof and Tam-
bovskoe, on the south by Orlovkoe, and on the west by
Kuluzko; 120 miles long, and from 40 to 100 broad.
Tula is the capital. N. lat. 53° to 55°. E. long. 36° to 38°.

TULUM, a town of Peru, in the province of Ghilan; 10 miles S. of Refhid.

TULUN, a town of Ruffia, in the government of Ir-
kutk, on the Ija; 44 miles E. of Niznei Dufnik.

TUMAGURRA, a town of Bengal; 18 miles N. of
Toree.

TUMANSKOI, an island of Ruffia, in the Frozen
ocean, of a triangular form, lying north of the ifle of Kirlah, from which it is divided by a narrow channel; about 350
miles in circumference. N. lat. 71° 50' to 73° 15'. E.
long. 116° to 126°.

TUMANUNA, in Ancient Geography, a municipal town
of Africa, in Mauritania Caefariensia, according to the Table of Ptolemy.

TUMARRA, a town of Africa, in Mauritania Caefariensia,
Ptolemy.

TUMB, or Tombo, or Potombo, or Cataseto, or Slangen,
or Great Tumb, in Geography, an island in the Perifian gulf, about three miles in length from eaf to weft, and much
frequently by trankeyes from the Arabian shore, which refide here a week or ten days for the benefit of fishing. A fandy
bay on the eafit fide fens a good landing-place. N. lat.
26° 24'. E. long. 55° 38'.

TUMB Namiu, or Little Tumb, a small island in the Perifian gulf; 10 miles S.W. of Tumb.

TUMBABA, a word used by chemifls to exprefs ful-
phur vivum, or crude sulphur.

TUMBACH, in Geography, a town of Bavaria; 17
miles N.N.W. of Amberg.

TUMBADO, a small island among the Bahamas. N.
lat. 26° 24'. W. long. 79° 30'.

TUMBALA, a word used by some authors, to exprefs
the fquame, or fcales, of any metal.

TUMBALLA, in Geography, a town of Hindooftan, on
the coaft of Malabar; 25 miles S. of Cochin.

TUMELEN ISLANDS, a cluster of small islands in the
East Indian fea. N. lat. 1°. E. long. 107° 58'.

TUMBERIDIPAL, a town of Hindooftan, in Mysore; 22 miles N. of Daraporum.

TUMBEZ,
TUMBEZ. a town of Peru, in the jurisdiction of Piazza, near a river of the same name, which discharges itself into the bay of Guayaquil, almost opposite to the island of St. Clare. Barks, boats, balzas, and canoes, may go up and down this river, being three fathoms deep, and twenty-five fathoms broad; but it is dangerous going up it in the winter season, the impetuosity of its current then increasing by torrent from the mountains. At a little distance from the Cordillera, on one side of the banks of the river, stands the town of Tumbez, in a very sandy plain, interspersed with some small eminences. The town consists only of seventy houses, built of cane and thatched, scattered up and down, without any order or symmetry. In these houses are about 150 families of Meficos, Indians, Mulattoes, and a few Spaniards. There are, besides these, other families living along the banks of the river, who having the convenience of watering their grounds, continually employ themselves in rural occupations. The heat is excessive; nor have they here any rain, for several years successively: but when it begins to fall, it continues during the winter. The whole country, from the town of Tumbez to Lima, contained between the foot of the Cordillera and the sea, is known by the name of Valles. Tumbez was the place where, in 1526, the Spaniards first landed in these parts of South America, under the command of Don Francisco Pizarro, and where he entered into several friendly conferences with the princes of the country, but vainly to the Incas. If the Indians were surprised at the sight of the Spaniards, the latter were equally so at the prodigious riches which they every where saw, and the largeness of the palaces, cathedrals, and temples, of all which, though built of stone, no vestiges are now remaining; 280 miles N. of Truxillo. S. lat. 3° 14′; W. long. 89° 47′.

TUMBLER, a name given to a particular species of pigeon, called by Moore the columba revolvent. See Pigeon.

It has its name from its peculiar property of tumbling when it is in the air, which they are very fond of doing; and effect exactly in the same manner as our posture-masters do it; by throwing themselves over backward. It is a very small pigeon, and is always short-bodied, full-breasted, thin-necked, narrow-beaked, and has a small short head; the iris of the eye in this species is usually of a bright pearl-colour.

The English tumbler is usually of one plain colour; black, blue, or white; the Dutch is much of the same make, but has different colours, and is sometimes feathered on the legs; it has also a larger head, and thin skin round the eye. Some of the small pigeons of this sort are bred from a mixture of the Dutch and English kinds. These pigeons are remarkable for the height to which they fly; they never ramble far from home, but will rise almost perpendicularly, till they appear no larger than a sparrow, or become quite out of sight; they will often keep at this height five or six hours, and then come gradually down again: they never tumble when they are at any great height, but only as they ascend or come down again. There are particular times also, at which these birds will take much higher flights than at others; but they ought to be kept by themselves, and practised to it by the company of one of their own species; for if they mix while young with other pigeons, they will learn to fly as they do; a flight of a dozen of these birds sent out together, will keep so close, as to be all in a compass that might be covered with a handkerchief; but they should never be turned out in foggy weather, or in high winds; in the full cafe, they lose sight of their home, and perhaps never find it again; and in the other, they are blown away; and if they return, it is not till another day; in the mean time lying out, they are in danger of cats, and other accidents.

Lastly, the hen should never be turned out with egg, for she is then sick, and not fit for flying; and beside often drops her eggs, and the breed is lost by it. Moore's Columbarium, p. 39.

TUMBLER is also a fort of dog, called in Latin vertagus, from his quality of tumbling and winding his body about, before he attacks and fallens on the prey. See Dog.

This species took its prey by mere subtlety, depending neither on the sagacity of its nose, nor its swiftness; if it came into a warren, it neither backed nor ran on the rabbits; but by a seeming neglect of them, or attention to something else, deceived the object till it got within reach, so as to take it by a sudden spring.

These dogs are often less than hounds; being lanker, leaner, and somewhat prick-eared; and by the form of their bodies, they might be called mungrel greyhounds, if they were a little bigger. They seem to answer to our modern lurchers.

TUMBLING-BAY, in a Canal, is the name with overfall or weir; which fee.

TUMBLING Dam, in Geography, a place on the river Delaware; 20 miles above Trenton.

TUMBLING-Home, the inclination of the top-sides of ships from a perpendicular towards the centre or middle line of the ship. The top-sides of three-decked ships have the greatest tumbling-home, not only from their being lofier, but for the purpose of clearing the upper works from the smoke and fire of the lower guns. The advantages and disadvantages of tumbling-home sides will be found discussed in Ship-building; which fee.

TUMBREL, TUMBLERUM, a ducking or cucking flool, an engine of punishment, which ought to be in every liberty, that has a view of frank-pledge, for the correction and cooling of scolds, and unquiet women.

TUMBREL, in Artillery, is a kind of carriage with two wheels, used to carry the tools of the pioneers and miners, and sometimes likewise the money of the army.

TUMBREL is also a common name for a dung-cart.

TUMBRIL, SHEEP, a contrivance of the balest kind for the purpose of keeping different farts of food for the use of them. It consists of a fort of circular cage or basket made of oyers, willows, or any other plants of the bruishwood kind. It is about ten feet in circumference in the whole, and closely wattled to the height of about one foot, above which it is left open for the space of eighteen inches; it is then wattled again to the height of eight or ten inches more, and an opening, about eighteen inches in breadth, is left at the top, for putting in the hay, roots, or other lasts of food, whether green or dry. The flaves which form the skeleton of it are put in inches amber, so that twelve sheep may feed at it at the same time.

Considerable advantage may be derived from this simple contrivance in the feeding of these animals, as it not only effects a material reduction in the consumption and expense of the provender, which is by this means prevented from being trodden under foot, or failed by the dung; but in this state of separation the stronger sheep cannot drive away the weaker, as each is secured by the head. And as the construction of such tumbrils is attended with no difficulty, they may be easily provided and conveyed to any part of a farm, and with due care be kept in constant use for eight or ten years, or even much longer.

TUMBUK, in Geography, a town of Africa, in Kordofan; 180 miles S.W. of Scourar.
TUMEFACTI ON, the act of swelling, or rising into a tumour.

Inflammations and tumefactions of the teats frequently happen in the gonorrhoea; either from the weaknesses of the vesicles, violent motion, unfeorable use of alliments, a neglect of norrying, or the like.

TUMEN, in Geography, a town of Persia, in the province of Ghilans; 18 miles W. of Rehad.

TUMERIZ, a town of Moravia, in the circle of Brunn; 6 miles W. of Nicolibus.

TUMEX, in the Materia Medica of the Ancients, a name given by authors to a sort of tumty, the fame with the curdul placitis of Dioscorides and the Greeks. This was a worse kind than the botryitis. See TSPANI.

TUMMARRAH, in Geography, a town of Africa, in Sabara.

TUMMEL, a large river in Perthshire, Scotland, rises on the confines of Argyelshire. Near its source it forms a broad lake, called Loch Rannock, at the termination of which the river assumes the name of the Tummel. In its progress it forms another lake, called Loch Tummel, in which is a small island, with an old fortress or castle, formerly the residence of the chief of the clan of the Robertsons. The whole course of the Tummel is rapid and furious, and in several places forms very romantic and picturesque cascades. One of its falls, near its junction with the Garry, is particularly grand, as its whole water is precipitating over the broken rocks with afflicting violence. After its union with the Garry, the character of the Tummel seems entirely changed: before, it was an impetuous torrent; it now becomes a quiet and placid stream. The banks below the junction are extremely rich, and the river meanders through a fine valley; now dividing its stream, and forming small islands, now running in a broad sheet. Though the Tummel is smaller than the Garry, it gives the name to the river formed by their union, because it can trace its origin farther back than the Garry, which is composed of the waters of the neighbouring hills, while the source of the Tummel is a considerable lake, in its course from which several distant streams contribute to its importance. The Tummel pours its waters into the river Tay at Logierat.—Garnet's Tour through the Highlands, 4to. 1806. Beauties of Scotland, vol. iv. Perthshire, 1806.

TUMMEROO, a town of Meckley; 25 miles S.E. of Munypour.

TUMMOO, a town of Meckley; 45 miles S. of Munypour.

TUMOURS. The meaning of the word tumour, in Surgery, is exceedingly comprehensive; for it applies generally to the growth of all diininct superfluous parts, or subflances, which did not make any portion of the original structure of the body, as well as to every morbid increase in the bulk of other parts, which naturally and always existed in the human frame. Within this definition will come the greater number of diseases; as cysts or droops, bronchocles, adena, fungus hematoles, hydrocele, ganglions, inflammations of various organs, white swellings, aneurisms, ulcers, haemorrhods or piles, exabiolism, excrescences, polypi, hernia or ruptures, scirbus, worss, &c. &c. (See these words.) Had it, therefore, entered into our arrangement to confider, in the present article, all the diseases which may be classed as tumours, we should have had a very tedious and laborious task indeed, namely, that of writing out and prefiguring to the reader, in this part of the Cyclopaedia, a description of the nature and treatment of at least two-thirds of all the diseases usually considered as surgical. Our plan, however, has been different; and for the sake of avoiding all occasion

for so long a production, we have treated of numerous kinds of tumours in separate articles, which are alphabetically distributed in this Dictionary.

In the present article, we propose to offer a few general remarks on the formation of tumours; to describe particularly those of the encysted and fcaromalous kinds; and to give some account of the manner of removing tumours in general.

It is difficult to give altogether an unobjectionable account of the formation of tumours, the secrets of which processes will perhaps never be disclosed. We know that parts become thickened and enlarged by inflammation; but the causes of the origin and growth of all such swellings as are conflit of some new production, which made no part of the original composition of the body, may be said to be totally unknown. In Mr. Abernethy's surgical works will be found some remarks upon this subject, which are far more rational and interesting than those generally advanced.

"The incipient flate of tumours," he observes, "will naturally first engage our attention; and those which perhaps form the belt example and illustration of the subject, are such as hang into cavities from the membranous surfaces, which form their boundaries. The cause of tumours having a pendulous attachment attracted the attention of Mr. Hunter, who made the following remarks on the formation of one on the inner surface of the peritoneum, as is related by Sir E. Home, in the Transacti ons of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. i. p. 231. "The cavity of the abdomen being opened, there appeared lying upon the peritoneum a small portion of red blood recently coagulated: this, upon examination, was found connected to the surface, upon which it had been deposited, by an attachment half an inch long; and this neck had been formed before the coagulum had lost its red colour.' Now had vessels shot this flender neck, and organized the clot of blood, as this would then have become a living part, it might have grown to an indefinite magnitude, and its nature and progress would probably have depended on the organization which it had assumed. I have," says Mr. Abernethy, "in my posefion a tumour, doublets formed in the manner Mr. Hunter has described, which hang pendulous from the front of the peritoneum, and in which the organization and congequent actions have been so far completed, that the body of the tumour has become a lump of fat, whilst the neck is merely of a fibrous and vascular texture. There can be little doubt, but that tumours form every where in the same manner. The coagulable part of the blood, being either accidentally effused, or deposited in congequence of dilatae, becomes afterwards an organized and living part, by the growth of the adjacent vessels and nerves into it. When the deposited subflance has its attachament by a single thread, all its vasculaf supply must proceed through that part; but, in other cases, the vessels shoot into it irregalarly at various parts of its surface. Thus, an unorganized concrete becomes a living tumour, which has at first no perceptible peculiarity as to its nature; though it derives a supply of nourishment from the surrounding parts, it seems to live and grow by its own independent powers; and the future structure, which it may acquire, seems to depend on the operation of its own vessels. When the organization of a gland becomes changed into that unnatural structure, which is observable in tumours, it may be thought in some degree to contradi thes observations; but, in this case, the subflance of the gland is the matrix, in which the tumour is formed.

"The structure of a tumour is sometimes like that of the parts near which it grows. These which are pendulous into joints
TUMOURS.

joints are of a cartilaginous or osseous fabric; fatty tumours
frequently form in the midst of adipose substance; and I
have seen from tumours growing from the palate, and hav-3
ing a slender attachment, which in structure resembled the
palate. Sometimes, however, they do not resemble in struc-
ture the parts from which they grow. The infance, just
mentioned, of the pendulous portion of fat growing from
the peritoneum, will serve as a proof: the vessels, which
had shot into it, made the tumour into fat, whisth the neck
was a fibrous and vascular structure. I have seen these
6 tumours unconnected with bone, or periosteum; and, in-
deed, in general, the structure of a tumour is unlike that of
the part in which it is produced. Therefore, we seem
warned in concluding, that, in many cases, the nature of the
tumour depends on its own actions and organization; and
that, like the embryo, it merely receives nourishment from
the surrounding parts.

"If, then, the coagulable part of the blood be from any
cause effused, if the adjacent absorbents do not remove it,
and the surrounding vessels grow into it, the origin of a
tumour may be thus formed. It may be right," says Mr.
Abernethy, "to reflect a little on the caules which may
occasion a deposition and consequent organization of the
cogaulable part of the blood; as such reflexions throw
light on the nature and growth of tumours, and lead to the
establishment of principles, which are applicable to tumours
in general. The deposition of the coagulable part of the
blood may be the effect of accident, or of a common in-
flammatory process; or it may be the conquence of some
diseased action of the surrounding vessels, which may in-
fuence the organization and growth of the tumours.

"In the former cases, the parts surrounding the tumour
may be considered simply as the sources from which it de-
vires its nutriment, whilst it grows apparently by its own
inherent powers, and its organization depends upon actions
began and existing in itself. If such a tumour be removed,
the surrounding parts, being found, soon heal, and a com-
plete cure ensues. But if a tumour be removed, whose ex-
sistence depended on the diseafe of the surrounding parts,
which are still left, and this diseafe be not altered by the
fpuilus of the operation, no benefit is obtained: these
parts again produce a diseased substance, which has gen-
early the appearance of fungus; and, in conquence of being
irritated by the injury of the operation, the diseafe is in
general increased by the means which were designed for
its cure. It appears, therefore, that, in some cases of tu-
mours, the newly formed part alone requires removal;
whilst, in others, the surrounding substance must be taken
away, or a radical cure cannot be effected.

"There is yet another circumstance deserving attention,"
says Mr. Abernethy, "before I proceed to the particular
consideration of the subject; which is, that a tumour, once
formed, seems to be a sufficient cause of its own continuance
and increase. The irritation which it caues in the contiguous
parts, is likely to keep up that increased action of the vessels,
which is necessary to its supply; and the larger it becomes,
the more does it stimulate, and of course contribute to its
own increase.

"Suppose then a tumour to have formed and increased;
it will continue to grow, and to condense the surrounding
cellular substance, and thus acquire for itself a kind of cap-
fule. Tumours are more closely or loosely connected to
the surrounding parts; which circumstance seems to depend
upon the degree of fullness which they occasion, and the
inflammation which they thus excite. This irritation per-
haps may be the cause why some tumours, which are flow
in their first increas, grow rapidly after they have acquired a
Vol. XXXVI.

We regard the preceding account of the formation of tumours as the most rational and probable which has hitherto
been offered.

All tumours, which are such as may be termed new-
formed parts, and did not enter into the original structure
of the body, appear to be ended with inferior powers of
life, and are much sooner destroyed by inflammation than
other parts, which always naturally exist in the animal
frame. The knowledge of this fact has led to the method
of curing several kinds of tumours, by the application of
simulating substances to them; but it is not a plan of treat-
ment which will invariably answer. Some tumours are so
large, that the constitutional illnefs, which would arise from
the inflammation and sloughing of the whole of their mass,
would in all probability be fatal. Some swellings are of a
malignant, irritable character, fo that applying stimulants
to them is more likely to exasperate than cure the diseafe.
Hence, it is generally deemed imprudent to apply caufes
to cancerous affections; because unless every particle of
such diseases, and a good deal of the surrounding substance,
be destroyed by the action of these violent remedies, the
cafe will not be benefited, but rendered ten times worse.
Indeed, we may lay it down as a general maxim, that the
plan of attacking tumours with stimulants and caufes is a
bad one, unless it be certain that every particle of the difeafe
may be in this manner easily and quickly destroyed, without
too much local and constitutional irritation being pro-
duced.

Encysted Tumours.—In the midst of the subcutaneous cel-

eral substance, of that which separates the muscles, or even
of that which enters into the texture of different organs.
Tumours are observed to form, whose circumference pren,
its a particular structure, and whose cavity is filled with un-n
usul kinds of matter. The parietes of these tumours are
composed of a fort of membrane, named a cyst, and are con-
ected with the surrounding parts by means of the neigh-
bousing cellular substance. This latter circumstance appears
have attracted the attention of a great many writers, who
have conceived the formation of cysts, by supposing that
a cavity of the cellular membrane, in conquence of diseafe,
may have all its communications with the other cavities of
the cellular membrane destroyed; that it may acquire the
property of secreting matter entirely different from that
which it secretes in the natural order of things; and that
the accumulation of the deposited substance may produce a
progressive dilatation of the small cavity. The layers of
the cellular substance, in which the tumour develops itsel,f,
are afterwards supposed to undergo a kind of condensation;
and by this theory, it is attempted to explain the consi-
derable thicknefs of some cysts, the extraordinary appear-
ces of their organization, and the possibility of reduc-
ing them into cellular substance by maceration, inflammation,
f uppuration, &c. It is difficult, observes M. Delpech, to
adopt this opinion, and reconcile it to the following ob-
ervations.

1. There are some thin transparent cysts, which have
been termed frous, whose inner surface is villous, and whose
cavity is filled with a fero-mucous secretion, resembling
fynovia. In the same cavity, hairs are frequently observed,
which are of different lengths, and always curled; the roots
being implanted into the sides of the cyst.

2. There are other cysts, which are generally of a thin,
but much more compact, texture than cellular membrane;
being, as it were, almost horny and half opaque. Their
inner surface is pulpy, and sometimes irregular. Their

3D cavity
TUMOURS.

cavity is filled with a fluid, that has more or less confluence, is pultaceous, and of a white or yellowish colour, being compared sometimes to pop, sometimes to liquid honey, and in other instances to sue imperfectly melted. Hence, the names of atheroma, meiricis, and flectoma, by which they are commonly distinguished. The contents of these encysted

3. We observe some cysts formed of albumen converted into a fibrous texture, and whose organization is more or less imperfect. Particular cysts of this latter kind are composed of several concentric layers, which are only slightly adherent together, and the organization of which is unequally advanced. In such a case, M. Delpech has found the external layers made up of a perfectly fibrous texture; while the vestiges of an organized structure were much less evident in the subjacent layers, and altogether wanting in those most deeply situated, which were purely albuminous. The contained matter is of an albuminous or gelatinous quality.

4. Other cysts are what Delpech calls fibro-cellular; their sides are very thick, extremely compact, and sometimes even offished in certain parts. The contents are almost like scum, occasionally tinged with blood.

5. Exceeding this last sort of cyst, which is closely connected with the surrounding cellular membrane, and almost identical with it, there is, of every kind of cyst, a portion of the surface which fearfully has any adhesion to the circumjacent parts. In extirpating such tumours, if the surgeon makes a perpendicular cut through the parts, covering their external surface, he can afterwards completely detach them with the utmost facility. In short, they can be separated with a spatula, or any other blunt instrument, without any difficulty.

6. Sometimes inflammation attacks the cellular membrane around the cyst, and terminates in suppuration. One or more spontaneous openings serve at first for the discharge of the abscess; but these are at length joined together by the effect of ulceration, and the whole mortified cyst sloughs away. The same thing is occasionally seen, when caustic has been applied to the skin covering the most prominent part of the swelling. The application not only produces an effusion of the integuments, it causes also an acute inflammation of all the cellular substance around the tumour, and mortification of the whole cyst, which comes away in a mafs. Likewise, when the surgeon has been fearful of cutting out every portion of a cyst, and only opened it, or removed a part of it, with the design of completing the destruction of the rest by local applications, it has often happened that the remainder of the cyst has spontaneously sloughed away, while the surrounding cellular membrane was in a state of acute inflammation.

7. Lastly, an encysted tumour, treated in the preceding manner, has often presented phenomena resembling those of cellular substanee, and admitted of being cured in the way which was desired. Healthy suppuration has been established; granulations have arisen; the cavity has been gradually lefzened; and a solid cicatrix has at length been formed. But it has much more frequently happened, that the cavity has not been obliterated; but become filled with painful, bleeding, fungous excrements, which have caused an apprehension of cancer, and a necessity for no longer deferring the extirpation of the diseaee.

These reflections appear to M. Delpech to justify the conclusion, that encysted tumours do not proceed from an accidental or mechanical modification of the cellular membrane; but that they are so many new-formed organs, which are not endowed either with the same degree or the same mode of vitality as the surrounding parts.

The causes of the formation of encysted tumours are entirely unknown: it is observed, however, that a strongly marked propensity to be afflicted with many such swellings exists in particular individuals, which is a fact that would lead one to suspect the operation of constitutional causes.

For infall, it is common for those firm cysts, which contain a papery matter, and which have received the appellations of atheroma, meiricis, and flectoma, to be very numerous in the scalp, or other particular situations. It is well known also that the fibro-cellular cysts, usually named dropsy of the ovary, are sometimes prodigiously numerous, either in one or both of these organs together. It is superfluous to remark, that external violence, to which encysted tumours have been often ascribed, has in reality no concern with the disease. Besides the evident disproportion between this species of cause and so great an organic change, it may be observed, that if a blow can sometimes be cited, as having preceded the formation of an encysted tumour, the same cause cannot be specified in other cases, where twenty or more of these swellings originate in suception.

An encysted tumour, at its commencement, is always exceedingly small, and of a perfectly indolent nature. It is not known whether, in this early state, the cavity of the cyst already exists. The swelling usually grows with remarkable swifness; indeed, it is often many years before it attains a considerable size. It even frequently happens, that after the tumour has become large enough to be manifold, the cyst remains stationary for years, until some irritation occurs, which renders the diseaee painful, and accelerates its progress. It appears that, in these circumstances, the latter enlargement of the tumour does not depend upon a bricker secretion of the kind of matter originally contained in it, but rather upon suppuration of the cyst. In fact, the indige of the fac is then found to be inflamed or ulcerated, and a certain quantity of pus blended with the papery matter, with which the swelling had no doubt been previously filled. This change, however, seldom happens, unless the tumour be, by its situation, exposed to repeated external violence.

An encysted swelling is ordinarily of a spherical shape, except when this form is altered by the disposition of the surrounding parts. The tumour is moveable in a degree proportioned to the mass of cellular substance around it; and its surface is in general smooth and regular. Sometimes, however, bands of aponeurotic fibres pres upon certain portions of it, as it enlarges; and thus it is rendered irregular. The same alteration may be produced by great inequality in the thickness and confluence of the sides of the cyst, or by their being weakened by internal ulceration. It is not uncommon in the beginning, and even sometimes in an advanced stage, for the swelling to have a very firm feel, either because the cyst is still of considerable thickness, and the contained matter not copious; or else because the cyst is exceedingly tenue, not having yielded to the dilution of the matter within it. In this circumstance, the swelling is not compreptible; and if, at the same time, its surface should chance to be irregular and tuberculated, and epecially if the diseaee should also be painful, the surgeon may easily make a mistake, and imagine the case to be cancer. The resemblance, indeed, is very great; and M. Delpech assures us, that he has seen practitioners of the highest merit deceived by it. But it more usually happens, that an encysted tumour presents, from the first, a soft, fluctuating,
TUMOURS.

fluctuating, doughy feel. The fluctuation is obvious enough, when the cyst is thin, and the contained matter almost all liquid. This symptom, however, is absent when the sides of the swelling are very thick and firm, and its cavity is occupied by a pappy fort of matter; but, in this last kind of case, the shape of the mass may be altered by compression, and the tumour will retain every impression made in it. If to these circumstances we add, that the tumour is every where soft and compressible, we have all the proper symptoms of this class of swellings; symptoms by which they may be most frequently distinguished from every other disease that has any resemblance to them.

The stationary condition of an encysted tumour may last during life, if the disease be not exposed to external violence, and it be free from every complication. But, as we have already explained, an accidental irritation may cause an inflammation, and suppuration, and ulceration, of the cyst. The convenience may also be inflammation and ulceration of the integuments. In both cases, the cyst may spontaneously burst, the contents escape, the cyst slough away, and the ulcer heal; or else soft, painful, fungous granulations may shoot from the inner surface of the cyst, and render cicatrization impracticable. With regard to complications, a cancerous affection, which is sometimes joined with the organization of an encysted swelling, is the most afflicting: in this case, when ulceration occurs, the carcinomatous symptoms immediately make rapid and dangerous progress.

Encysted tumours, like aneurisms, may destroy the parts of bones, upon which they make considerable pressure. Delpech, Précis Elémentaire des Maladies Chirurgicales, tom. iii. feet. 8.

A curious appearance is sometimes the consequence of an encysted tumour being filled with a substance resembling horn in consistence; for, when the cyst burst, the indurated contents gradually protrude, and sometimes form an appendage very much like horn. Some years ago, we saw a complete horn removed from the ferotum, by Sir J. Earle, in St. Bartholomew's hospital. It had begun as a tumour, which, after bursting, emitted from its inside the horny excrecence. The preparation is now in Mr. Abernethy's museum.

In the British Museum is preserved a curious specimen of a horn, which grew from a woman's head, and, in all probability, was formed by a process similar to that which we have mentioned. In Mr. A. Cooper's posseffion is a still more remarkable specimen, which was given to him by Dr. Roots of Kingston, and which in shape and size bears a close resemblance to a ram's horn! It also grew from the head, and had been preceded by another horn-like excrecence, similarly situated and shaped, which had likewise been removed. We have subsequently been informed, that the patient, who was a gardener, had afterwards a third horn, which grew in the same identical place. In this case, we must suppose that a portion of the cyst had not been exiripated in the previous operations, and that it retained the power of secreting the horn-like matter. First Lines of Surgery, p. 142. edit. 3. See also Horny Excreceries, in this Cyclopaedia; and Sir E. Home on the same subject, in the Philosophical Transactions.

We have already noticed the curious fact of many cysts containing hairs: we have now to mention the more surprising circumstance of teeth having been sometimes found in the cavities of encysted tumours. A remarkable example was lately published by Mr. S. Barnes, surgeon at Exeter. The cyst was a double encysted swelling in the orbit; in the extirpation of which disease, a sharp bony process was discovered, and removed, together with the remains of the fac which adhered to it.

On examination, it was found to stand like a tooth, and much resembling in form and size the supernumerary teeth sometimes found in the palate. The part which projected into the fac was conical, and covered, by a smooth shining, white enamel; the fac firmly adherent round a contracted portion at the base of the cone, resembling the neck of a tooth; and on the outside of the fac, the appearance of a root, truncated obliquely, with a passage in the centre, evidently containing blood-vessels. It was by this part that it was connected with the floor of the orbit. See Medical-Chirurgical Transactions, vol. iv. p. 316, et seq.

Practitioners are not acquainted with any effectual means of stopping the growth of encysted tumours; nor are the endeavour to promote the disferion of the cyst and its contents by general or topical treatment, attended with any success. It has been alleged, that, in cases of what have been called Leo-mucoi cysts, the removal of these cysts and their contents might be brought about, by exciting the action of the absorbents with strong difcuent topical applications; and instances of this mode of cure have been cited in relation to such swellings formed upon the patella, or at the extremity of the olecranon. But Delpech remarks, that, in these cases, the nature of the disease is mistaken, because, in the situations specified, there constantly exists a fynovial membrane, a bursa mucos, forming a kind of joint betwixt the bony prominence and the integuments. The fynovia may accumulate and lodge in the cavity of the mem- branous sac; and if the membrane be not thoroughly diseased, as to render the absorption of the fynovial fluid impossi- ble, the natural functions of the part may be re-estab- lished, and the swelling admit of being slowly disserened. This is what is sometimes accomplished by different local remedies, particularly those of the difcuent class. But if the fynovial membrane is more completely diseased, its properties may be so altered, that the secretion from it is altogether of a different nature, and absorption is totally obstructed. This is what sometimes occurs in persons who are in the habit of kneeling a great deal; in them the fynovial membrane is often considerably thickened; sometimes it is partly ossified; and Delpech mentions, that he has even found loose substances in its cavity. Here we see, that in the fift instance, an immediate cure is possible, since the disease is not an organic alteration. But in the second example, which more resembles the state of encysted tumours, although it be only the change of a pre-existing organ, the affection cannot be cured without destroying the dis- tempered part. Delpech, with a view of opposing evident facts to such as are wrongly interpreted, or doubtful, ad- verts particularly to those leo-mucous cysts which so often form in the substance of the eye-lids. The apprehension of a fear upon the face, says he, confantly leads to a trial of topical refolvents, before extirpation is attempted. Surgeons know, however, that the tumours are not removed by absorption; and that, if the local applications sometimes accomplish the cure of the disease, it is by producing an irritation of the skin, which irritation extends itself to the cyst, where inflammation, suppuration, ulceration, and floughing, are the consequences. But, generally speaking, these effects are not excited, and when they are, a cure of the disease is not uniformly the result. The inflammation, carried to the requisite pitch to produce ulceration of the cyst, may only affect some points of it, and perhaps merely that portion which is next to the integuments. Every where else the inflammation may be very flight, and quite insufficient to cause ulceration and floughing of the deeper
part of the cyst. Then, external ulceration taking place, the tumour empties itself; and the part either heals up, with the exception of a fistulous opening; or things are brought into their original state by the formation of a perfect cicatrix, so that the encysted tumour makes its appearance again.

Some practitioners have thought that encysted tumours might be cured by the employment of irritating injections, like those so successfully used in the treatment of hydrocele. The experiments which have been made with them, however, have not generally answered; and, if we reflect upon the comparative state of things, it will appear that, in these cases, the object aimed at should not be the same. In the example of hydrocele, it is unnecessary to destroy the tunica vaginalis, and the obliteration of its cavity is all that is needed. Experience also proves, that, in consequence of a very mild degree of inflammation, the cavity of the tunica vaginalis is filled with lymph, which becomes organized, and connected with the adjacent membraneous surfaces. This suffices to render all exhalation for the future impossible. But encysted swellings have a peculiar organization, different from that of any originally formed parts. We have no reason for supposing, that any flight inflammation will make them pour out coagulating lymph that is capable of becoming vascular. They even seem so indolent to be thus affected, that nothing at all resembling it happens, unless the cause of the inflammation is kept up with considerable perseverance. The inflammation also, when it is excited, more readily produces mortification of the cyst, than the other kind of alteration. In fact, it is observed, that while some portions of the inflamed cyst become covered with fungous granulations, others mortify and separate in the form of sloughs. The whole of a cyst has not always the same structure, and affixed parts of it, for instance, are not likely to admit of that process, by which a hydrocele is usually cured. The hairs often growing in the cavity of an encysted tumour, must generally have their attachments destroyed by the inflammation following the use of an irritating injection, and they would then probably operate as extraneous substan ties.

These circumstances tend to shew, that the practice of making an incision into the swelling must be at all events preferable to that of employing irritating injections. By an incision, all the contents may be discharged, the whole cavity of the cyst exposed, and such applications constantly made as are calculated to keep up the requisite degree of inflammation. This method, also, gives the surgeon an opportunity of destroying particular portions of the cyst with caustic, if necessary. In this way, he is sometimes obliged to destroy the large fung, which frequently originate from the thickest parts of the cyst, after it has been opened and cauterized, or merely irritated by the dressings. Too often, however, the superficial use of caustic is insufficient to lessen the size of these fungous growths, and not adequate even to restrain their daily increase; while deep coagulations produce acute long-continued pain, fever, loss of sleep, and great irritation of the whole extent of the diseased. The train of symptoms, indeed, which the repeated free use of caustic may occasion, must seem still more alarming, when it is recollected that the cyst of the tumour sometimes becomes the seat of cancer; and that all the ravages of the latter disease in the ulcerated state may be the consequence. In this circumstance, the practitioner is obliged to have recourse to the extirpation of the swelling, and this sometimes a long while after the cyst has been opened, and not before the patient has suffered a long series of other painful, unavailing measures. Nor can these dangerous effects be avoided by opening the tumour with caustic instead of with a cutting instrument. The more certain inflammation of the cyst thus aimed at, is by no means sure of ensuing; and it will never follow, unless the caustic act strongly on the cyst. Besides, the action of caustic is too variable to justify the calculation, that its effects will reach to so precise depth, and always effectually destroy the cyst. See Delpech, Précis Élémentaire des Maladies Chir., tom. iii.

The inconveniences of opening an encysted tumour ought to make us give a decided preference to extirpating or amputating the whole of the swelling, whatever may be the nature of the cyst. Indeed, this method of treatment is superior to all others. The art of doing the operation skillfully, confits in detaching the tumour from the surrounding parts without wounding the cyst. If the latter accident occurs, the contents frequently flow out, the cyst collapses, and the continuance of the dissection is attended with more difficulty. It is a great point to remove every particle of the cyst; and hence it is satisfactory to take it out entirely, that is, without wounding it. When any portion remains behind, the wound will frequently not heal, in consequence of fungous granulations arising from the diseased part. Unless the swelling be large, a single incision through the skin is sufficient; but in other instances, it is advantageous to make two semicircular cuts in this manner, ; first, because it facilitates the removal of the tumour; and secondly, because it prevents a redundance of skin, which would take place if none were removed, and which would have the effect of seriously retarding the cicatrization of the wound. After the operation, the edges of the wound are to be brought together with flichting-plaster, and a compres and bandage applied.

The excision of encysted tumours, superficially situated, is mostly very easy, as the cyst is only lightly connected with the surrounding cellular membrane. But there may be more difficulty when the swellings have been in a previous state of inflammation; when they are very large, or when a portion of the cyst is deeply situated, or closely adherent to other parts. First Lines of Surgery, p. 144, edit. 3.

We must not quit the subject of encysted tumours, without making a few remarks on those of the scalp. The encysted tumours met with in this part, are situated between the integuments and the aponeurosis of the occipito-frontalis muscle. Their cysts are mostly of a hard, horny consistence, and filled with a pulpyaceous matter, being what are termed cases of atheroma. It is very common for such swellings to grow in large numbers. The intimate union between the aponeurosis and the skin causes the latter to be considerably stretched by the growth of tumours underneath it; but notwithstanding this effect, and that the integuments are also sometimes rendered very thin from the same cause, they are seldom altered in appearance, excepting occasionally their exhibiting a livid colour, which is a sign of their being about to ulcerate. When encysted tumours of the scalp have slowly attained an immense size, the skin covering them is distended in such a degree, that it is either quite bald, or at most only has a very few hairs upon it, so widely separated are the bulbs. It rarely happens that the pressure of the swelling produces an absorption of the part of the skull underneath the diseased; but examples of this kind have sometimes been observed.

Encysted tumours on the top of the head, even when they have acquired a considerable size, may be easily concealed by a hat, cap, or the head-dress; and, unless in a painful, inflamed, or ulcerated state, cause but little inconvenience. But when they are situated at the sides of the cranium, they render the wearing of hats, or any kind of head-dress, less comfortable.
TUMOURS.

convenient, and are much exposed to frequent causes of irritation, by which their enlargement, and even external ulceration, may be promoted.

The solidity and simple structure of the surrounding parts make the extirpation of these tumours very easy of accomplishment. A great portion of the skin which covers them, thin as it may be, ought to be shaved and laid down immediately upon the subjacent parts. It is only when the skin has been enormously dilated, that it becomes necessary to cut away the redundant quantity of it. No endeavour should ever be made to cure encysted swellings of the scalp by opening them, or applying caustic. The safest method is to remove them altogether with the knife. The surgeon need not be afraid of extending his incisions under the deepest part of the swelling; for if he be careful to cover the depressed part of the cranium with the skin which he is to lave, no exfoliations will generally follow. They do not necessarily follow, even when the pressure of the swelling has caused an absorption of some of the subjacent bone. Delpech is of opinion, that, as the scalp is very disposed to erythematous inflammation after wounds, surgeons ought not to cut out encysted tumours of that part, unless they produce serious inconvenience. On this point, however, we think differently; because we regard the objection to the operation, on the score of the danger of erysipelas from the wound, as exaggerated, and by no means sufficiently valid to justify leaving the tumour to itself. The disease would then continue to increase; the operation required hereafter would consequently be more serious; and, in the event of the tumour ulcerating, both more difficult in its execution, and more uncertain in its event.

In another part of the Cyclopaedia, the reader will find a few observations on the encysted tumours which frequently form upon the eye-lids. See EVILS, Encysted Tumours of. Of Fatty Tumours, Adipose Sarcoma, or Lipoma.—Fatty tumours, often termed also lipomata, or adipose, are formed by an accumulation of fat in a limited, and generally very circumferibered, extent of the cellular substance. The structure of a lipoma is absolutely the same as that of the adipose sub stance, such as it appears to be in those situations where fat naturally collects; with this difference, however, that the interstices of the cellular membrane, thus affected, are of considerable size, and obviously enlarged. The integuments, which are distended, and rendered much thinner, constitute a true fatty spread over the mass of fat, of which the tumour is composed; nothing appearing to be interposed between them and the swelling itself. There are some cases, where the partitions of the cellular sub stance, which separate the cavities in which the fatty matter is deposited, are thicker and more compact than in the natural fat; and when a section is made of these swellings, the exposed surface presents a marbled appearance of a yellow and white colour. Delpech remarks, that this species of lipoma is more disposed to become cancerous, than the common forms of it; but of this, very rational doubts may be entertained. In fact, our experience teaches us that true adipose tumours have as little tendency as any sort of swelling to change into true carcinoma, or that disease which is characterized by the peculiar alteration of structure, seen in only in cirrhotous affections.

Fatty swellings are mostly of an oblong pyramidal shape, and have a narrow pedicle, which is itself of a fatty texture; but sometimes they have a base, which is as broad as the whole mass of the tumour.

Lipomatous or fatty tumours are met with in persons of all ages; but they are most frequently observed in adults. The shoulders, the back, and the neck, are very common situations for these swellings. But their occurrence is so frequent, that there are few surgeons who have not had many opportunities of fering them in almost every region of the body. We once saw an adipose tumour which grew on the thigh, and after it had been removed by Mr. Cline, in St. Thomas's hospital, was found to weigh between fourteen and fifteen pounds. Sometimes adipose tumours are formed in parts where there is naturally but a small quantity of fat: thus Delpech has seen a fatty swelling formed in the labia pudendi, the structure of which is very different from fat. Sometimes adipose swellings are formed betwixt the peritoneum and the parietes of the abdomen, in which circumstance the tumours make their way outwards under the integuments, drawing along with them the part of the peritoneum to which they are attached. Such cases have been improperly named by the French surgeons 'hernia graffenens.'

The causes of the growth of adipose tumours are not known: the disease has been sometimes ascribed to blows, and other kinds of external violence; but we agree with M. Delpech in believing, that this doctrine is altogether incorrect and unfounded.

The shape and slow growth of adipose tumours might suffice to indicate their nature; but they present other characters, amongst which the consistence of the mass of the swelling deferves particular notice. These swellings are not elastic, but of a peculiar soft feel, resembling what is perceived on handling a bag filled with cotton. Their surface is unequal, but the irregularities which are distinguishable through the thin integuments have no firmness, and are obliterated by compression. These circumstances, however, are only strongly marked in such adipose tumours as have not yet acquired an immense size, and which remain free from every complication. When the swelling has become exceedingly large, its weight, its magnitude, its pressure on the surrounding vessels and integuments, materially obstruct the circulation; and an edema then taking place between the skin and adipose substance, the consistence of the latter part may appear to be increased. A manual examination, however, made by a surgeon of experience, will still detect the kind of softness which is peculiar to all fatty tumours, and discriminate it from the firmer feel of the cellular membrane immediately under the skin. Any previous attacks of inflammation may produce the same effect, and this even in a more remarkable degree. Such attacks are very common in those adipose swellings whose situation particularly exposes them to frequent causes of irritation. Thus, M. Delpech once saw a large lipoma growing in one of the labia pudendi, the incessant motion of which swelling, together with the friction of the thighs against it, and the irritation of the urine, had frequently made the skin inflame, and caused deep ulcerations in the sides of the tumour. The swelling was heavy and indurated; the irregularities of its surface were much firmer than usual; but in handling the mass attentively, the peculiar consistence of lipoma could be distinguished in the deeper part of the tumour, and be discriminated from the hardness of the integuments and cellular substance. Such induration is accidental; it seldom affects the whole of an adipose tumour; when it occurs, it is always confined to the layers of cellular membrane in which the adipose substance is lodged; it originates from repeated external irritation; and it should always be well discriminated from the hardnesses arising from a cancerous disease.

Adipose tumours, for the most part, grow in a regular, slow, and progressive manner; and their vessels are generally neither large nor numerous. Hence the removal of these swellings is attended with little danger of any serious degree.
of hemorrhage, and they are very easily separated from the surrounding parts. The detachment of the tumour, however, may be more difficult when there have been previous attacks of inflammation in the part. An adipose tumour, even when large, may continue a great many years without producing any material inconvenience, provided no complication attend the disease. The swelling may grow with more or less rapidity, or remain stationary; but it has never been observed to disappear spontaneously, and every means which has been hitherto tried with a view of dispersing it, has proved ineffectual. The only method of cure consists in cutting away every part of such a swelling, which ought to be done before the diseased mass is of very large size.

Of some other Kinds of Sarcomatous Tumours.—It is extremely difficult to name and describe, clearly and unobjectionably, all the different varieties of sarcoma. Mr. Abernethy has proposed naming them according to their anatomical structure, or their supposed resemblance in texture to particular organs. Thus he adopts the terms common vacuolar, or organized sarcoma; adipose sarcoma, which we have already described; pancreatic sarcoma; cystic sarcoma; mafloid or mammary sarcoma; tuberculated sarcoma; medullary sarcoma, &c.

Under the title of common vacuolar, or organized sarcoma, Mr. Abernethy comprehends all tumours which appear to be composed of the gelatinous part of the blood, rendered more or less vaculaiy by the growth of vessels through it, without having any distinguishing peculiarity of structure. Mr. Abernethy conceives that this kind of organization in tumours is the most simple, and perhaps, may always precede the other descriptions of structure. Vascular sarcoma not only makes its appearance as a tumour, which is altogether extraneous in regard to the original conformation of the body, it also enlarges natural parts, especially the teftis, mamma, and absurhent glands.

When this sort of swelling has attained a considerable size, the superficial veins become quite varicoe. If left to itself, the tumour generally grows till the skin is so distended, that it ulcerates and exposes the new-formed substance, which sloughs and falls out.

In this manner the disease might be got rid of; but such are the constitutional irritation attending it, and the fever and frightful appearance of the part, that the surgeon generally waits no longer, but removes the whole mass of the disease with his knife.

Pancreatic sarcoma is the name which Mr. Abernethy applies to those flothy tumours which resemble the pancreas in structure. The substance of which they consist is composed of irregularly-shaped masses, connected together by a fibrous kind of texture. This species of sarcoma is sometimes formed distinctly in the cellular substance; but most commonly occurs in the female breast, perhaps originating in the lymphatic glands. The tumour increases slowly, and generally has little tendency to inflame and suppurate. The morbid structure in question frequently takes place in the breast, a little above, and on that side of the nipple which is next to the arm. In general the disease is chronic, and does not involve the neighbouring aburhent glands. But, in a few instances, this species of sarcoma, when situated in the breast, deviates from its ordinary indolent nature, and occasions fever, lancinating pain, an inflammatory state of the integuments, and an adhesion of them to the tumour, the axillary glands also becoming enlarged. Pancreatic sarcoma is sometimes so irritable a disease, that Mr. Abernethy thinks it may frequently be considered as bad as cancer. When the glands in the axilla become affected, one generally first swells, and is extremely tender and painful; afterwards the pain abates, and it remains indurated; another then becomes affected, and runs through the same course.

Those sarcomatous tumours which contain cysts or cells, Mr. Abernethy distinguishes by the term cystic. The disease sometimes occurs as a distinct swelling; but it is more commonly observed in the tef-teis and ovary. The cysts are very vascular, so that they admit of being made quite red with an anatomical injection. They generally contain a serous fluid; but sometimes a yellow or yellowish fluid. Mr. Abernethy believes that this species of sarcoma is peculiarly intractable when situated in the tef-teis.

The mafloid or mammary sarcoma is so named from its resemblance to the mammary gland in structure. Mr. Abernethy has not frequently seen this kind of tumour, and his attention was called to the nature of the disease by a case, in which a swelling, partaking of the above structure, and about as large as an orange, was removed from the front of the thigh. The wound seemed at first difpofed to heal; but it afterwards degenerated into a malignant ulcer, which in about two months proved fatal. As this sort of tumour is gradually lost in the surrounding parts, which probably retain a disposition to assume a similar morbid alteration, Mr. Abernethy very judiciously recommends a more extensive removal of them than was practised in the foregoing example.

Tuberculated sarcoma is the name proposed by Mr. Abernethy for those flothy swellings which consist of an aggregation of small, roundish tumours, of various sizes and colours, connected together by a kind of cellular substance. This gentleman has principally seen the disease in the lymphatic glands of the neck. The tumours ulcerated, became painful, and ultimately destroyed the patients. Mr. Abernethy regards the tuberculated sarcoma as an incurable and fatal disease; though, fortunately, its occurrence is unfrequent.

Malignant sarcoma is the term applied by Mr. Abernethy to a malignant and dangerous kind of tumour, which resembles in its structure and appearance the medullary substance of the brain. It is often seen affecting the teftis, and has been termed the soft cancer of that part. Many surgeons consider this affection and the fungus hamatomas as the same: we do not therefore deem it necessary to offer here any remarks in addition to those already delivered on the latter disease in another article. See Fungus.

Treatment of Tumours.—Surgeons not only remain ignorant of those particular causes which produce the commencement of the growth of the various descriptions of fatty, fleshly, indolent tumours; they also know no effectual means by which the progress of the disease can be checked, and the patient freed from the inconveniences of continually bearing about with him a mass of redundant matter, which, in a chronic state, is both a deformity and an oppression; and in an inflamed or ulcerated state, is a source of severe pain, and even of fatal mischief. It has been conjectured that topical bleeding and cold applications would check the growth of indolent tumours; but experience teaches us to place no dependence upon the plan. Mercurial fuctions, electricity, blisters, and local stimulants, have also been repeatedly tried, with a view of exciting the action of the absorbents, and dispersing the swelling. Thefe methods, however, are not recommended by many examples of successes; and they are attended with some risk of irritating the tumour, without lessening it, in which case the disease sometimes changes from an indolent quiet form to an irritable state, in which it inflames, enlarges, ulcerates, emits fungi, and assumes a character as dangerous and intractable as that of cancer itself. Whenever a swelling is suppecsted of being either a mammary, mammary, or mafoidal tumour, to which it is very similar, much caution is necessary, and the case should be carefully examined and determined before any attempt is made to remove the disease.
TUMOURS.

tuberculated, or medullary sarcoma, it is particularly neccessary to abstain from doing any thing which may irritate the part.

Of the Operation of removing a diseased Breast, and Tumours in general.—The operation of cutting away a diseased breast, is done nearly in the same manner as the removal of tumours in general, and is indicated whenever the part is affected with an incurable disease, which admits, however, of being entirely removed with the knife. When the breast is affected with scirrhous, or ulcerated cancer, the imprudence of tampering with the diseafe cannot be too severely cenfured. Were the disorder unattended with a continual tendency to increase, some time might properly be dedicated to the trial of those internal remedies, and external applications, which have acquired any great merit for doing good in these unpromising cafes. But, unfortunately, by endeavouring to cure the disease by medicine, we only afford time for it to increase in magnitude, and, at length, to attain a condition, in which even the knife cannot be employed so as to take away the whole of the diseased parts. When the case is marked by the charactertic features of scirrhous, the sooner the tumour is cut out the better. There are also some malignant kinds of sarcoma to which the female breast is subject, which cannot be removed at too early a period after their nature is suspected or known. Indeed, though there is not equal urgency for the operation when the tumour is only an indolent, fimple, fatty, or farcomatous disease, yet as all these tumours are continually growing larger, and little fuccefs attends the attempt to disperse them, the practitioner should never devote much time to the trial of unavailing medicines and applications, and let the swelling attain a fize, which would require a formidable operation for its excision. Besides, every fimple, fclerous, or fatty tumour, is always accompanied with a certain hazard of changing into a malignant or cancerous one.

Certainly there are many swellings and indurations of the breast, which it would be highly injudicious and unnecessary to extirpate, because they generally admit of being diffcufled. Such are many tumours which are called seropulbrous, from their affecfing patients of this peculiar constitution: such are nearly all those indurations which remain after a fudden and general inflammatory enlargement of the mamma: such are most other tumours which acquire their full fize in a few days, attended with pain, redness, &c.: and of this kind, alfo, are the hardnesses in the breast, occasioned by the mammary absceses.

In the removal of all tumours, their malignant or cancerous nature makes it neceffary to obferve one important caution in the operation; viz., not to be fatisfied with cutting away the tumours juft at their circumference; but to take away also a considerable portion of the substance in which they lie, and with which they are surrounded. In cutting out a cancerous breast, if the operator were to be content with merely defcufcing out the diseafe, juft where his eyes and fïngers might equally lead him to fuppofe its boundary to be situated, there would still be left behind white fclerofed bands, which radiate from the tumour into the surrounding fat, and which would inevitablj occasion a relapse. In a vait proportion of the cafes alfo in which cancer of the breath unfortunately recurs after the operation, it is found that the skin is the part in which the diseafe makes its reappearance. Hence the great prudence of taking away a good deal of it in every cafe fculpccted to be a truly scirrhous or cancerous diseafe. This may also be done fo as not to prevent the important objects of uniting the wound by the firll intention, and covering the whole of its surface with found integuments. So frequently does cancer recur in the nipple, whenever it does recur any where, that many of the beft modern operators always make a point of removing this part in every infiance in which it is judged expedient to take away any portion of the skin at all. The surgeon, indeed, would be inexcufable, were he to neglect to take away fuch portion of the integuments covering scirrhous tumours, as is evidently affected, appearing to be difcoloured, puckered, and closely attached to the diseafed lump beneath. Nor fould any gland in the axilla, at all diseafed, nor any fibres of the pectoral mulfcle, in the fame frate, be ever left behind. There is no doubt that nothing has flamped operations for cancers with difrepute, to much as the neglect to make a free removal of the skin and parts surrounding every fide of the tumour. Hence the disease has frequently appeared to recur, when, in fact, it had never been thoroughly extirpated; the diseafe, though entirely a local affection, has been deemed a conftitutional one; and the operation frequently rejected as ineffectual and ufeftfs.

But strongly as we have urged the prudence, the neceffity of making a free removal of the skin covering, and of the parts surrounding every cancerous or malignant tumour, the fame plan may certainly be regarded as uueffary, and therefore uueficient, in most operations for the removal of fimple, fatty, or fclerous tumours. However, even in the latter cafes, when the swelling is very large, it is better to take away a portion of skin; for otherwife, after the excifion of the tumour, there would be a reundance of integuments, the cavity of which would only ferve for the lodgment of matter. The loofe fuperfuous skin, alfo, would lie in folds, and not apply itself evenly to the parts beneath, fo as to unite favourably by the firft intention; nor could the line of the cicatrix itself be arranged with fuch nice even- nefs as it might be, were a part of the redundant skin taken away at the time of operating.

The beft method of removing a diseafed breath is as follows: The patient is ufually placed in a fitting posture, well supported by pillows and affifants; but the operator would find it equally convenient, if not more fo, to remove the tumour with his patient in a recumbent position; and it certainly is better whenever the operation is likely to be long, or much blood to be loft, which circumstances are very apt to bring on fainting. We remember that Mr. Abernethy, in his lectures, used to recommend the latter plan; which, however, without the function of any great name, or authority, pleafes fuch obvious advantages, as will always entitle it to approbation. The arms should be confined back, by placing a flick between them and the body, by which means the fibres of the great pectoral mulfcle will be kept on the ftretch, a flate moft favourable for the defcufion of the tumour off its surface. The flick alfo prevents the patient from moving her arm about, and interrupting the progres of the operation.

When the tumour is not large, and only a firmarcula, free from malignancy, it will be quite unnecessary to remove any of the skin, and of course this need only be divided by one incifion, of a length proportionate to the tumour. The cut must be made with a common defcufing knife; and, as the division of the parts is chiefly accomplished with the part of the edge towards the point, the inftrument will be found to do its office best when the extremity of the edge is made of a convex shape, and this part of the blade is turned a little back, in the way in which defcufing knives are now often conftucted. The direftion of the incifion through the skin should be made according to the greatest diameter of the tumour to be removed, by which means it will be most easily defcufed out.

The
The direction of the incision is various with different practitioners; some making it perpendicular, others transverse. In general, the shape of the tumour must determine which is the best. In France, it has been said, that when the incision follows the second direction, it heals more expeditiously, because the skin is more extensible from above downward, than laterally, particularly towards the sternum, and consequently allows the sides of the wound the more readily to be placed in contact; and that the action of the pectoral muscles does not tend to separate the edges of the wound when it is perpendicular. On the other hand, it is allowed that the wound, made in the latter manner, is the most favourable for the escape of the discharge, if suppuration should occur. See Default par Bichat, tom. ii, p. 312.

The cut through the skin should always be somewhat longer than the tumour; and as it is, perhaps, the most painful part of the operation, and one attended with no danger whatever, it should be executed with the utmost celerity. Pain is certainly more or less be dreaded, according to its duration. The fear, however, of giving pain, has probably led many operators to err, by not making their first incision through the integuments large enough, the consequence of which has often been, that there was not room enough to get at the tumour so as to dissect it out with facility: the patient has been kept near an hour in the operating room, instead of five minutes, and the surgeon confounded by the spectators as awkward and tedious. It is clear, also, that, besides the great deal more blood lost from this error than would otherwise happen, the vessels being commonly not tied till all the cutting is finished, the avoidance of pain, that fear which led to the blunder, is not effected, and the patient suffers much more, and for a much longer time, in consequence of the embarrassment and obstacles in the way of the whole operation.

When the disease is of a circular, or malignant nature, the skin covering the tumour should at all events be in part removed. All that portion which is discoloured, puckered, tuberculated, or otherwise altered, should be taken away. Some m uns also be removed, in order to prevent a redundance, in all cafes in which the tumour is large. We have said too, that in cases of scirrhus and cancer of the breast, the nipple is considered a dangerous part to be left behind. For the purpose of removing the necessary portion of skin, the surgeon must obviously pursue a different mode from that above described; and instead of one straight incision, he is to make two semicircular ones, one immediately after the other, and which are to meet at their extremities. The size of these wounds must be determined by that of the disease to be removed, and by the quantity of skin which it is deemed prudent to take away; for the part which is included in the two semicircular cuts, is that which is not to be separated from the upper surface of the swelling, but taken away with it. The shape of the two cuts together may approach that either of a circle or oval, as the figure of the tumour itself may indicate as most convenient. The direction of the incisions is to be regulated by the same consideration.

In the above ways, the first division of the integuments is to be made in removing tumours of every description covered with skin. The fame principles and practice should prevail in all these operations; and, whether the swelling is the mamma, or any other diseased mass, whether situated on the chest, the back, the head, or extremities, the same considerations should always guide the operator's hand. The incision or incisions in the skin having been made, the next object is to detach every side of the tumour from its connections, and the separation of its base will then be the last and only thing remaining to be done. When the tumour is a scirrhus, or other malignant disease, the operator must not dissect close to the swelling, but make his incisions on each side, at a prudent distance from it, so as to be sure to remove with the diseased mass, every atom of morbid mischief in its vicinity. But when the tumour is only a mere fatty or other masses, perfectly free from malignancy, the cellular bands and vessels forming its connections may be divided close to its circumference. It is astonishing with what ease the operation is performed, and certain and the necessary division is made in the skin; they may almost be turned out with the fingers, without any cutting at all. When they have been inverted, however, they are then more adherent to the surrounding parts.

Thus we see, that the first stage of the operation of removing a tumour, is the division of the skin; the second, the separation of the swelling from the surrounding parts on every side; the third and last stage is the division of the parts to which its under surface, or base, is attached. The latter object should be accomplished by cutting regularly from above downward, till every part is divided.

It is a common thing to fee many operators constantly embarrased and confuted, whenever they have to remove a large tumour, on account of their having no particular method in their proceedings. They first cut a few fibres on one side, then on another; and turning the mass of diseased tumour now on this side, now on that, without any fixed design, they both prolong the operation very tediously, and prevent the by-handers a complete specimen of surgical awkwardness. On the contrary, when the operator divides the cutting part of the operation into the three methodical stages above recommended, in each of which there is a distinct object to be fulfilled, he proceeds with a confidence of knowing what he is about, and soon effects what is to be done, with equal expedition and adroitness.

Having taken out the tumour, the operator is immediately to tie such large vessels as may be pouring out their blood; indeed, when the removal of the swelling will necessarily occupy more than three or four minutes, it is better to tie all the large arteries as soon as they are divided, and then proceed with their division. This was the celebrated Deault's plan, and it is highly desirable of imitation in this country, not only because many subjects cannot afford to lose much blood, but also because the profuse effusion of this fluid keeps the operator from seeing what parts he is dividing.

The largest arteries being tied, the surgeon should not be immediately folicitous about tying every bleeding point which may be observed. Instead of this, let him employ a little time in examining every part of the surface of the wound, in order to ascertain that no portion of the swelling, no hardened lump, nor diseased fibres remain behind. Even if any part of the surface of the pectoral muscle should present a morbid feel or appearance, it must, on every account, be cut away. Also, if any of the axillary glands are diseased, the operator should now proceed to remove them. After the time spent in such measures, many of the small vessels, which bled just after the excision of the swelling, will now have stopped, the necessity for several ligatures will be done away, and of course the patient saved a great deal of pain, and more of the wound be likely to heal by the first intention.

Some information may be derived, respecting whether any of the tumour is left behind, by examining its surface, when taken out, and observing whether any part of them is cut off; for if it is, it may always be found in the corresponding part of the wound.
TUMOURS.

The axillary glands may always be taken out, without the least risk, if the plan pursued by Default in France, and Sir Charles Blicke, and other eminent surgeons in this country, be adopted. The method alluded to is, after dividing the skin covering the gland, and freeing the indurated part from its lateral connections, to tie its root, or base, with which it is connected, with the parts on the side towards the cavity of the axilla. Then the indurated gland itself may be safely cut off just above the ligature. Were the gland cut off in the first instance, the artery which supplies it with blood would be exceedingly difficult to tie, on account of its deep situation; and, by reason of its shortness and vicinity to the heart, it would bleed almost like a wound of the thoracic artery itself. In this way, there is also not the least hazard of injuring the latter vessel. It would be a great improvement in the mode of operating for the removal of these glands, if surgeons were always to make the patient lie down, with the arm placed in such a position as would let the light fall into the axilla. How much the steps of the operation would be facilitated in this way, we need not attempt to explain.

The above directions will enable a surgeon to remove tumours in general. They apply also in a great measure to encysted tumours; but in the latter cases, particular care must be taken not to wound the cyst, as it then collapses, and the diffusion of its contents is much more difficult. One half of each ligature is always to be cut off before dressing the wound. The edges of the incision are to be brought together with strips of adhesive plaster; and, before this can be done with ease, the flesh confining the arm must be removed, and the os brachii brought forward, so as to relax the pectoral muscle and integuments of the breast. No futubes should ever be employed, as they are useless, painful, and irritating. The wound being closed with sticking plaster, and a pledge of simple ceras, a compress of folded linen, or flannel, may be put over the dressings; these are to be secured with a broad piece of linen, which is to encircle the chest, be fastened with pins or stitches, and kept from slipping down by two tapes, one of which is to go from behind forward, over each shoulder, and be fastened to the upper part of the bandage both in front and behind. The arm on the same side as that on which the operation has been done, should be kept at rest in a sling; every motion of the limb must evidently disturb the wound by putting the great pectoral muscles in motion, or rendering its fibres sometimes tense, sometimes relaxed.

In the article Surgery, we have adverted to the plan of cutting off both ends of the ligatures applied to the arteries, with a view of lessening the quantity of extraneous subfusitate in the wound, and rendering union by the first intention more probable. This method has been tried by Mr. Lawrence after operations on the breast, and also by M. Roux and professor Delpech in France, who all make favourable reports of the practice.

The removal of tumours from the neck is frequently an operation of delicacy and difficulty, especially when the exact attachments and depth of the swellings are not precisely known. The many large arteries in this part of the body, and its being the situation of the carotid artery, and internal jugular vein, are considerations which ought to deter every surgeon who is not an anatomist, from venturing to cut away swellings from the neck, particularly such as have bales extending more or less deeply, and not very movable. Unfortunately for the man who is deficient in anatomical knowledge, the neck is as common a situation for tumours requiring the ufe of the knife, as any part which can be specified.

Vol. XXXVI.

One of the boldest operations, for the removal of a tumour from the neck, was that lately performed by Mr. William Goodlad, surgeon at Burry, in Lancashire, and recorded in the seventh volume of the Medico-Chirurgical Transactions, p. 112. In order to do away the danger of hemorrhage from arteries, this gentleman began with tying the trunk of the carotid artery; some conception of the nature of the whole proceeding may be formed from the view which the wound presented after the entire swelling had been removed. "The whole ferior-malloid muscle was exposed, and its fibres dissected clean, except about half an inch from its insertion into the clavicle. The wound extended backwards from behind the mastoid process to the trachea anteriorly, but became narrowed in the direction of the muscle at the lower part of the neck. The submaxillary gland was exposed, and about one-fifth of its substance, not appearing healthy, was removed. The digastric and the greater part of the mylo-hyoides were exposed, the ramus of the jaw was only covered by periorientum, except where covered by the masseter muscle, part of which, not appearing healthy, was dissected away. The whole of the condyloid process of that bone was laid bare in the same manner, and behind it the pterygoideal muscles were also exposed. The membrane of the cheek was only covered by a cellular substance, which did not appear healthy; but sufficient skin was freed to cover the zygoma. The parotid gland was entirely removed." This, which is one of the boldest operations on record, proved successful, the wound having completely healed in ten weeks, and no recurrence of the tumour having followed. See Abernethy's Classification of Tumours. Delpche Précis Elémentaire des Maladies réputées Chirurgicales, tom. iii. Cooper's Dictionary of Practical Surgery. Medico-Chirurgical Trans. vol. vii. pt. 1, &c.

TUMOUR, among Animals, is a preternatural swelling or enlargement in any part, arising either from an external injury, or an internal cause. Tumours in them are of several different kinds, according to the nature of the causes.

Where tumours or swellings are caused by external accidents, such as blows, bruises, and other such means, they should at first be treated with refrangible applications; such as having the parts bathed frequently with warm vinegar or verjus; and where they will admit of bandage, a flannel wetted with the same should be rolled or laid on, and kept in that situation. When by this method the tumour or swelling does not give way and subside, a poultice made with red-wine lees, strong-beer grounds, and oatmeal, or with vinegar, oil, and oatmeal, should be applied, especially when on the legs; either of which applications may be used and continued twice a day after bathing the parts in the above manner, until the swelling abates, when, in order to wholly disperse them, the vinegar should be changed for camphorated spirits of wine; to four ounces of which, one of spirit of fal ammoniac may be added; or they may be bathed with a mixture of two ounces of crude fal ammoniac boiled in a quart of chamber-sky, twice a day, and cloths dipped in the same be put on them. Fomentations, too, made by boiling wormwood, bay-leaves, and rosemary, with a proper quantity of spirits, are not unfrequently of use in a high degree.

However, in bruises where there may be extravasated blood, which is not taken up or dispersed by these means, the shortest and most convenient way is to open the face, and to let out the gruminous blood.

The critical tumours or swellings in horses or other animals, which terminate fevers, or other diseases, should by no means be dispersed, except, when in the hooves, they fall
upon the pattern or coffin-joint, fo as to endanger them; in which cafes the ditficient fomentation may be applied three or four times a day, and a cloth or flannel frequently wrung out of the fame may be bound on the parts.

But when the swellings fix themselves under the jaws, behind the ears, on the poll, the withers, or in the groin, sheath, or other parts of the hoie, or any other animal, they should be encouraged and brought forward by ripening poultices, wherever they can be applied: oatmeal boiled foft with milk, to which a proper quantity of oil and laird is added, may answer this purpose; or the poultice compounded of linseed-meal, as used in other cafes: these should be applied twice a day, until the matter is perceived to fluxuate, by the feel, under the finger, when it should be let out; for which purpose a knife or flrong lancet should be used, making an opening the whole length of the tumour, where it can be safely done, as nothing contributes fo much to a kind healing of the parts, as the matter having a free discharge, and the opening being sufficiently large to drefs it to the very bottom.

After this, pledges of lint or tow, spread thinly with black or yellow bafiicon, or the wound ointment, and dipped in the fame, melted down with a fifth part of oil of turpentine, should be laid to the bottom of the fore, and the whole filled up in a very light manner with the fame, without any fort of stuffing. It may be drefsed in this way once or twice a day, if the discharge be great, until a proper digestion be brought on, when it should be changed for pledges spread with the ointment with red precipitate, ufed in the fame manner. If the fore should not digest kindly, but look pale, and discharge a thin watery fluid, it should be fomented as often as it is dressed with the above fomentation, and the flrong-beer poultice be applied over the drefsing, continuing the fame until the matter grows thick, and the fore has a florid appearance.

There are other indolent tumours fometimes occurring in animals, but which are noticed under their proper heads.

Tumours, Mooy, in Agriculture, a term applied to the small hilly spots or swells of boggy plots which are formed on the banks of hanging flopes, or dippers over flatter surfaces, in particular cafes and situations. They may be formed in various ways, as in the manner of quickfands, by the waters which fall in their immediate vicinities, but which, to produce certain defects of the wet kind in the lands, find a receptacle sufficient to give the affected tumour parts a conflant supply of moisture, or what is enough for giving the bog plants that take root upon them fertility and support. Thus, fuch ripening grounds as are formed of open, porous, or freely conducting materials, having the lower borders of them imperfectly covered with an impermeable foil, are peculiarly liable to be affected with this fort of tumour defect. They are likewife capable of being caused by maffes of impenetrable matters, which are lodged on the fides of the declivities, or at the feet of them; also by internal wetness, defending through the land in partial channels that lead it to the surface; and by the fame fort of wetness when confined beneath an impermeable foil, but which is defective, and by reason of the weight thereof above it, admits of the confined moisture rising through veins of the fandy kind, or other conducting substances and passages to the surface where these forts of tumours are produced.

Wherever lands are troubled with these kinds of tumours, which is not unfrequently the cafe, they are to be removed by drawing away the wetness in proper methods, and the suitable manuring, retinking, and managing of the ground, by which means they may often be converted into good fwalk land. See Mooy and Waste-Land.

TUMPACH, in Geography, a town of Bavaria, in the Upper Palatinate; 32 miles E.N.E. of Nuremberg.

TUMPING, in Agriculture, a term applied to the work of moulding up teafel crops, which is done in a clofe round manner, in order to make them "haddle" out, or throw forth fide-flouts, as it is called. It often answers as a kind of fence.

TUMUCHANAIG, in Geography, a town of Hindooftan, in Madura; 30 miles S.W. of Madura.

TUN, a town of Sweden, in Weft Gothland; 24 miles W. of Skara.—Alto, a town of Perfia; in Khoraffan; 25 miles E.N.E. of Paftn.

Tun, or Ton, originally signifies a large vefSEL or cafe, of an oblong form, biggest in the middle, and diminishing towards its two ends, girt about with hoops, and ufed to put up several kinds of merchandizes in, for their better carriage; as brandy, oil, fluger, flkus, hats, &c.

Some derive the word from autumnus, in regard it is then tuns are most needed. Du-Cange deduces it from tunna or tunna, words ufed in the cafe Latin for the fame thing; whence alsu tunnae, to tun.

The term is alsu ufed for certain vefSels of extraordinary bignefs, serving to keep wine in for several years. In Germany, there are many which are scarcely ever emptied: the Heidelberg tun is famous. The tun we frequently, though improperly, call a hoghead.

Tun, or Ton, is alsu a certain meafure for liquids; as wine, oil, &c.

The English tun of wine contains 2 pipes, or 4 hogheads, or 252 gallons. See Measures, Table XXI.

The standard gauge for foreign wines at the Cutlom-houfe of London is as follows: the pipe of Port is 138 gallons; of Lisbon, 140; of Madeira, 110; of Barcelona, 120; of Vidouia, 120. The butt of sherry is 130 gallons, and of mountain, 120. The hoghead of claret is 58 gallons, and of teut, 63. The awm of hock is 36 gallons. The gallon ufed here is feven inches in diameter and fix inches deep. The tun of animal oil is 252 gallons, and of vegetable oil 236 gallons.

The tun of Amsterdam contains fix ams or awms; the awm contains 4 ankers, 8 fekeans, 21 vierelts, 64 floops, 128 mingels, 236 pints, or 1024 mufes; and holds 8966 Dutch, 7705 French, or 9351 English cubic inches, or about 461 English wine gallons. The tun of beer contains 128 mingels, like the above. A tun of corn is 1.5 munden, or 1.5 facks, and holds 5 fceepels, 20 vierdevats, or 160 koops: 27 munden are equal to a half of corn, which contains 173208 Dutch cubic inches, 147120 French ditto, or 178540 English.

A tun of Leyden butter weighs 320 lbs.; and a Vierendel 80 lbs.; but the Vierendel of common Holland's butter weighs 84 lbs. A Frieland tun is 328 lbs.; and a Maffenbrook tun, 400 lbs.

At Bayonne, a muid or hoghead of wine contains 320 French pints, or about 76\(\frac{1}{2}\) English gallons; and 4 muids at Bayonne are equal to 5 at Bourdeaux. The pipe of brandy holds 80 velts, anfwerine to about 156 English gallons.

At Bourdeaux, a tonneau of wine contains 4 barriques or hogheads, equal to 50 fekeans of Amsterdam = 250 flhuben of Hamburg = 245 English gallons; and weighs with the wood about 2000 lbs. of Bourdeaux. The barrique contains 110 potts, or 32 lbs. Brandy is contained in casks of 50 velts, more or less; but it is held by the barrique of 32 lbs, or about 60 English gallons: 5 velts proof of Bourdeaux make 4 velts proof, by which it is told in Lon-

don.
At Cognac it is sold by the 27 vels; and 11 vels proof of Cognac make 10 vels proof, by which it is sold in London. A tun of butter, great measure, at Bremen, is reckoned at 300 lbs., but a tun of small measure at 220 lbs.; 100 lbs. of Bremen being equal to 110 lbs. avoirdupois. A fuder of wine contains 6 ohms; an ohm, 20 viertels = 45 flugens = 180 quarters = 720 mingels; 45 flugens answering to 38 English gallons. Brandy is sold by the 30 viertels. A tonne of beer contains 48 flugens = 192 quarters. A hogshead of train oil contains 2 tonnes, or flackens = 192 mingels.

At Brunswick, a fuder of wine contains 4 oxhofts, or 6 aams; an aam = 40 flugens = 160 quarters = 320 nosells. A fass of beer contains 4 tonnes; a tonne 27 flugens; and 63 flugens = 61 English gallons.

At Danzig, a tonne or barrel of butter is = 16 lipfonds = 256 lbs. A lat of beer contains 6 fasses = 12 tonnes or barrels = 1080 flods; the beer-tol being = 141 English cubic inches. A tonne or barrel of herrings contains 13 whale, each of 80 herrings; a lat of herrings, Luneburg falt, honey, pitch, tar, ashes, &c. contains 12 tonnes or barrels; and a lat of French, Scotch, or Spanish falt, when lying together, contains 18 tonnes, and when in separate tonnes, only 16.

In Denmark, the tonneau of French wine is reckoned for 4 hogheads, or 24 ankers; the pipe of Spanish and Portugal wine for 2 hogheads, or 12 ankers; 30 Spanish arrobas, or 22 Portuguese almuds of wine, for 1 regular pipe; the pipe of French brandy for 6 ankers; the poineon ditto for 9 ankers; the tiercon ditto for 4 ankers.

At Embden, corn is sold in tonnes of 4 verps, 8 scheffels, or 144 kruefen: 15 tonnes, or 60 verps, make 1 lat, answering to 125 English quarters.

In France, by the old system, a tonneau of Orleans contains 2 muids of Paris, the muid of wine at Paris being = 70 lbs. almudes: — a tonneau of Bourdeaux = 4 barriques, each of 216 pints of Paris, or 53 lbs. English gallons.

In most parts of Germany, a lat of lime, tar, pitch, train oil, butter, &c. is 12 tonnes or calves; a lat of herrings is 12 tonnes, each tonne containing about 800. See Tonneau.

At Hamburgh, a tonne of butter, small measure, is 224 lbs.; ditto, great measure, 280 lbs.: a pipe of oil is 820 lbs.; and a small tonne of green soap is 60 lbs.: a tonne of beer contains 48 flugens; a small ditto, 32 flugens; a quart of train oil contains 2 tonnes or 64 flugens, and is reckoned at 224 lbs. net weight.

In Hanover, a tonne or barrel of honey contains 25½ flugens, and weighs 300 lbs.

In Holstein, the measure for corn is the same as that of Copenhagen; viz. the tonne of 8 scheffels, or 32 viertels, 100 of which tonnes yield about 49 English quarters. A tonne of beer contains 128 quarters, or 25 English beer-gallons.

For the value of the tonne at Konigsberg in Prussia, see Tonneau.

At Libon, 13½ quintals make a ton; and each quintal contains 4 arrobas; the arroba 32 lbs., the pound of Libon weighing 70½ lbs. grains English Troy weight; so that 84 lbs. of Libon are equal to 84 lbs. of avoirdupois weight. The standard gauge, at the Custom-house of London, of a pipe of Libon, is (as above-mentioned) 140 gallons, and this pipe is reckoned at 31 almudes, and the almude at 4½ English gallons nearly.

At Nantes, in France, a tonneau of wine contains 2 pipes; a pipe, 2 barriques or hogsheads, or 240 pots; the pot holding 2 Paris pints, and the barrique containing 59½ English gallons, and a poineon of wine about 54½ ditto.

At Narva, in Livonia, a lat of corn contains 24 tonnes, and a tonne 4 viertels, or 32 kapps: 26 tonnes of Narva = 15 English quarters nearly: the lat of French and Spanish falt is reckoned at 18 tonnes, each of 34 kapps. The alm of wine contains 4 ankers, and a pipe of Spanish wine is reckoned at 10 ankers; of Alicante and Portuguese wine at 13 ankers, Hamburgh measure; a fass of beer or brandy contains 128 flo's, and 44 flo's answer to about 15 English gallons.

At Oporto, the ton is = 2 pipes = 50 almudes = 2 potes = 12 canadas = 24 quartilhos = 8 meios. At Libon, both wine and oil are sold by the pipe of 26 almudes; but the pipe of Libon wine sent to England contains about 31 almudes, and its standard gauge is 140 gallons; and therefore the Libon almude is reckoned at 4½ English gallons. At Oporto, the pipe is divided into 21 almudes, but this almude and its subdivisions are 4½ per cent. greater than those of Libon. Thus the standard gauge of a pipe of port, at the Custom-house of London, is 158 gallons, which gives the almude of Oporto equal to 6 English gallons and 5 pints nearly. Ships are measured by the ton, being a cylinder 6 feet high and 3½ feet in diameter, which gives the contents 5½ cubic feet nearly. The proportion between the almude of Libon and the almude of Oporto is variously given by different authors; some make it = 30 per cent., others 25, and others from 25 to 40; but the real proportion, says Dr. Kelly, is 49½ per cent.; but in the common course of business, 2 almudes of Oporto are reckoned equal to 3 of Libon.

At Peroum, in Livonia, a lat of corn contains 24 tonnes, the lat containing about 86½ Wincheister buflens, or 16 lafs = 173 English quarters. But a lat of linseed is reckoned at 12 tonnes, and a lat of salt at 18 tonnes.

At Revel, in Livonia, a lat of corn contains 24 tonnes, and a tonne of salt is 4 lafs: 19 tonnes of corn in Revel are = 8 English quarters.

At Riga, a lat of rye contains 22½ tonnes; a lat of wheat or barley, 24 tonnes; a lat of oats, malt, or pease, 30 tonnes: 24 tonnes being = 48 lafs, and 56 lafs of Riga = 13 English quarters.

At Stralsund, a lat of corn contains 8 drams = 32 tonnes = 96 scheffels: 46 scheffels contain 51 English buflens nearly, or 46 drams = 76½ English quarters. Kelly's Univ. Cambilt. paffim.

The great ton or Rhein wine-vels of Heidelberg, made in 1343, contained 672 urnz, of 4½ English gallons each; being in all 2690 English gallons, or about 24 hogheads, or 21 pipes of wine.

Tun is also a certain weight, by which the burden of ships, &c. is estimated.

The sea tun is computed to weigh 2000 lbs., or 20 quintals or hundred weight (amounting to 2440 lbs. avoirdupois); so that when we say a vesell carries 200 tuns, we mean it is able to carry 200 times the weight of 2000 lbs.; i.e. 400,000 lbs.: it being found by a curious observation, that the sea-water, whose room the vesell fills when full loaded, weighs so much.

To find the burden and capacity of a ship, they measure the hole or place where she is loaded; allowing 42 cubic feet to the sea tun. See Burden, and Tonnage under Ship-building.

The price of freight, or carriage of merceintries, is ordinarily settled on the foot of the sea tun; and yet, though the tun is regularly 20 cwt., there is some difference made in it. Upon account of the cumberfomness or bulk of the commodities, the space they take up, or the like. See Freight.

Accordingly, at Bourdeaux, 4 barriques of wine, and also of
of vinegar, honey, and turpentine, are held a tun; 5 of brandy, 3 of syrup, 20 bushels of chestnuts, and the like of corn, beans, linseed, walnuts, &c.; 5 bales (each of 100 lbs.) of cork, 5 bales (each of 100 lbs.) of feathers and skins, and 8 of paper; 10 cubic feet of marble, 20 quintals of iron in bars, or lead in pigs, 3 bales of hemp (each of 200 lbs.), 20 quintals, or 150 rolls of tobacco.

At Stettin, the freight of ships is generally valued by the Dutch ship list, 5 of which are equal to 4 lists of Stettin; and 4000 lbs. of iron, and other heavy goods, 2000 lbs. of lighter goods, such as hemp and flax, 500 sheffels of corn, 13 calls of herrings, 8 hogheads of wine, 5 schocks (each of 60 pieces) of pipe-claves, 7 schocks of hoghead-flavels, 9 schocks of barrel-flavels, 65 cubic feet of oak-timber, or 70 cubic feet of fir-timber, are reckoned for a Dutch list.

A tun or load of timber is forty solid feet, if the timber be round; if it be hewed or square, fifty-four.

Tuns, in Natural History, a family of univalves. See SHELLS AND CONCHOLOGY.

Tun, Ton, in the ends of words or names of places, signifies a town, village, or dwelling-place: from the Saxons, tun, feper, wallum, villa, vico, oppidum; and this from don, or don, a hill, where they formerly built towns.

Tun-Grees, a name anciently used for a reeve or bailiff, qui in villa, et & que dicimus manerius, domini perfanum suflinens, ejusque vice omnia dispensat & moderat. Spelman.

Tun-Hoof, in Botany. See GLECHOMA.

Tuna, in Botany, slightly altered by Dillenius from the South-American or West-Indian appellation of the fame plants, Tuna, Tunal, or Tunas, is retained by him for the tribe of American Figs, named Opuntia by other modern botanists. He contends, with great probability, that Opuntia of the ancients must be something very different. Linnaeus refers Tuna to Cactus; see that article.

Tuna, in Geography, a small island in lake Menzaeh; 8 miles S.E. of Tennis.—Alfo, a sea-port of Egypt, in the Red Sea. The entrance is between rocks, and within the greater part is filled with hillocks and rocks, which make the harbour small. On the north side is a tongue of land, which forms a good defence against the north-west wind; 52 miles S.S.E. of Coefer.—Alfo, a town of Sweden, in Hel Lingland; 3 miles N. of Hudwickfwall.—Alfo, a town of Sweden, in the province of Smaland; 56 miles N. of Calmar.—Alfo, a town of Norway, on the Glaumnen; 2 miles N.N.E. of Frederickfadt.—Alfo, a town of Arabia, in the province of Hedsjaa; 280 miles E. of Medma.—Alfo, a small island and village of Egypt, in the Tennis lake; 21 miles W.N.W. of Tineh.—Alfo, a town of Sweden, in Dalecarlia; 10 miles S. of Fahlun.

TUNAL, a town of Mexico, in New Biscay; 74 miles N.N.W. of Durango.

TUNALLUS, in Ichthyology, a name given by Albertus, and some others, to the greyling, or umber.

TUNB, in Geography. See Tunb.

TUNBATE, a town of Brifal, in the government of St. Paul; 65 miles N.N.E. of St. Paul.

TUNBO, a town of Sweden, in Sodermanland; 50 miles W. of Stockholm.

TUNBRIDGE, or Tunbridge, a market-town in the late of Aylesford, and county of Kent, England; is situated in an extensive tract called the Lowey-of-Tunbrige, and is distant 13 miles W.S.W. from Maidstone, and 50 miles S.E. from London. The term Lowey is derived from the Norman French, and signifies an exempt jurisdiction round the castle or chief manion to which it appertained. In the Domesday book this dirfrict was included under the name of Hallow, but no mention is made of a castle; whence it seems probable it was not erected when that survey was made; though it certainly was very shortly afterwards. It was built by Richard Fitz-Gilbert, afterwards earl of Clare; and under the protection of this fortress the town grew up, and gave its own name to the castle, which name appears to have been derived from the bridges over the different streams of the Medway, which flow on the south side of the town. Of these streams, which have each a bridge, and are five in number, the outermost was anciently the principal, as the northern now is; though the latter was originally formed to supply the innermost of the castle.

This fortress has been at different periods the scene of war and of fertility. Gilbert Rufus, who posed it in the reign of Henry III., joining the rebellious barons, was besieged by prince Edward, when the garrison burnt the town to prevent its being useful to that prince, who, however, took the castle: but Gilbert having joined the royal standard, it was restored to him. Here he entertained Edward, then become his sovereign, in a splendid manner for many days, on his return from Palestine. Prince Edward, afterwards Edward II., also made Tunbridge his temporary residence. In the next reign, the castle and manor passed by marriage to Ralph, earl of Stafford, whose descendants rode to a rank that eclipsed all other subjests, having five earldoms vested in them, and being at length advanced to ducal honours. In the reign of Henry VIII., the castle became forfeited to the crown by the attainer of Edward, duke of Buckingham. Queen Elizabeth granted the lordship and castle to her cousin Henry Carey, lord Hunsdon, from whom they descended to the Berkley's; having paffed through various possiflors, they are now the property of the Woodgates of Summerhill. The remains of the castle fland on the south-west fide of the town, but are principally confined to an entrance-gateway, flanked by round towers, and tolerably perfect, (probably rebuilt in the 14th century,) and the artificial mount on which the keep ftood. The castle was enwomed by three moats, within the outermoif of which the ancient town was chiefly confined. At a fhort diftanice was a priory of Austin canons, founded by Richard de Clare, firft earl of Hertford, about the end of the reign of Henry I. The buildings were all defroyed by fire in 1531; but were foon afterwards rebuilt. This was one of the houses fuppofed in 1525, to endow Wolley's intended colleges at Ipfwich and Oxford. From the foundations, yet visible, this priory appears to have been very extenfive: but only a few fragments now remain, besides the refefory or hall, which is used as a barn.

The town of Tunbridge principally confifts of one long and wide street, kept remarkably clean, and containing many repectable houses. At the entrance from London is a flone caufeway, the gift of John Wilford, citizen of London, in 1528. The principal bridge was erected in 1775, at the expense of 1100l., from a defign by Mr. Milne: near it is a wharf for the reception of the timber brought hither from the Weald, and afterwards fent down the Medway. The church, which is a fpacious fabric, was new pewed and orna mented, with a bequeath of 500l., made by the late John Hooker, esq. It contains fome good monuments of various families. Wever mentions "the portraiture of lord Hugh Stafford, kneeling in his coate-armour, and his bow-bearer, Thomas Bradlaine, by him," as remaining in his time in the north window. Many bequeaths have been made by different persons for the use of the poor inhabitants of this diocfe; but the principal charitable foundations is the free grammar-school, a capacious edifice at the north end of the town, which was founded and endowed by sir Andrew Judde, a native of
of Tunbridge, and lord-mayor of London in the fifth year of Edward VI. He died in 1558; and by his will directed that certain lands, of the annual value of £6l. or £6., and situated in various parishes in London, should be veiled in the company of skinners of London, for the perpetual maintenance of this school, for the free education of the boys inhabiting this town and the parts adjacent. Sir Thomas Smith, who married Sir Andrew’s daughter, considerably increased the endowments, and founded six stipends to the university; and several others were endowed by different persons. The skinners’ company, who are the governors, visit this school every year in May, attended, as the statutes direct, by some eminent clergyman, who is required to examine into the progress made by the different classes. The examination is conducted with much ceremony; and honorary rewards are distributed to the best scholars. The malts have, in general, been men of eminent abilities. The learned Dr. Viceimus Knox, well known for his literary productions, succeeded his father in this office in 1778. Though the annual income arising from the respective endowments of this school is very great, the number of boys educated on the foundation is very few: which, among other instances, points out the necessity of a parliamentary revision of our ancient charitable establishments. Immediately opposite the school is the seat of George Children, esq., to whose respectable family a very large and valuable tract of land belongs in this vicinity. The population of Tunbridge, as ascertained by the act of the year 1811, amounted to 5932, the number of houses to 958. Four fairs are held annually, and a market weekly on Friday. The adjacent roads have of late years been much improved, and that leading from the town to the Wells particularly so, by a laborious excavation on Quarry-Hill, by which the former steep ascent over it has been reduced to a very easy draught. It appears, from the “Notitia Parliamentaria,” that two members were returned in the 23d year of Edward I. for the borough of Tonbridge. About a mile and a half to the south-east of Tunbridge is Summerhill, an ancient and celebrated seat, now the property of William Woodgate, esq. The venerable mansion was erected by Richard de Burgh, earl of St. Albans, at a vast expense, in the reign of James I; of the style of building in whose day it forms a complete specimen; though its external appearance has, in some respects, been injured by injudicious alterations. It is a very extensive and interesting structure, and stands on a commanding eminence amidst romantic scenery.

On Quarry-Hill, about a mile and a half from Tunbridge, on the road to the Wells, is the seat of James Burton, esq. recently erected with the appropriate materials of the country, as the fragment of a castle, but replete with modern conveniences. Within a mile, on the same road, is Bounds Park and House, now the property of the earl of Darlington. The demesne surrounds the park, and consists of about a thousand acres of well-wooded land.—Hasted’s History of Kent, vol. ii. Beauties of England and Wales, vol. viii. Kent; by E. W. Brayley.

TUNBRIDGE WELLS, a hamlet in the west half hundred of Washlingstone, lathe of Aylesford, and county of Kent, England; consists of several villages within five or six miles from the town of Tunbridge, and situated in the three parishes of Tunbridge, Frant, and Speldhurst, at the distance of 18 miles S.W. from Maidstone, and 35 miles S.E. by S. from London. The principal villages are, Mount-Ephraim, Mount-Pleasant, Mount-Sion, and the Wells, properly so called. The springs, to which this neighbourhood is wholly indebted for its origin, rise in the parish of Speldhurst, and were accidentally discovered in the reign of James I. (See Tunbridge Waters.) Their fabulous quality being soon ascertained, wells were sunk, paved with stone, and lined with copper, in a triangular form. Hither came the afflicted, and returned healthy: but as no accommodations were nearer than the town of Tunbridge, the number was few. Henrietta Maria, queen of Charles I., being much indisposed after the birth of prince Charles, ilaid here five weeks; but as no house was near, she and her suite remained under tents pitched upon Bishop’s-Down. The splendid court formed a fine contrast to the country, every where rude, and in the unadorned attire of nature. In honour of her majesty, the Wells changed their name from Frant to that of Queen Mary’s Wells, which afterwards gave place to Tunbridge-Wells. During the civil war the Wells were neglected, and almost forgotten; but at the Restoration, recovered their former fame. Their celebrity was greatly increased in 1664, by queen Catherine being recommended to drink the waters after a dangerous illness. She continued here about two months, in great splendour: hence may be dated an assembly-room, bowling-green, and other appropriate places, at Ruthall; and another bowling-green and a coffee-house at Southborough. The surrounding country was spotted with neat rural habitations; till whin, and some alteration between the lord of the manor and the tenants, varied the scene. Ruthall was now deserted for Mount-Ephraim, and that for Southborough, which was soon eclipsed by Mount-Sion. At this changeful era, many of the houses were wheeled on sledges from one frite to another, as the caprice or interef of the owners dictated. The town of Tunbridge was now left to its original quiet; for the Wells became a complete village, with houses sufficient to accommodate all the visitors. A chapel and a school were erected by subscription, and the former being found too small for the increasing congregation, was enlarged a few years afterwards. This chapel stands in the three parishes; the pulpit is in Speldhurst, the altar in Tunbridge, and the vestry in Frant. A Presbyterian and also a Methodist meeting-house have been since built. During the last century, the buildings have gradually increased; and many persons of rank and respectability have houses for constant or occasional residence. Trade is carried on similar to that of the Spa in Germany, and consists chiefly in the manufacture of a variety of articles in wood of various kinds: the goods are well known by the name of Tunbridge-ware, as tea-chests, dressingboxes, snuff-boxes, punch-ladles, children’s toys, and many other articles. The air of this district is very pure and salubrious, and probably aids the efficacy of the waters, which are of the chalybeate kind, and nearly of equal strength to those of the German Spas. They are considered to be of great use in removing complaints arising from sedentary occupations, weak digestion, and nervous and chronical disorders. During the last and present reigns, Tunbridge-Wells has been frequently visited by different branches of the royal family. The Wells, properly so called, form the centre of the place; near which are the markets, medicinal water, a chalybeate spring, and public parades, called the Upper and Lower Walks; the Upper Walk was formerly paved with brick, but in 1793 with Purbeck stone, at an expense of £100; the other is unpaved, and used chiefly by country people and servants. On the right of the paved walk, in the way from the Wells, are the assembly-room, library, coffee-house, and shops with toys for Tunbridge-ware, milliners, and different kinds of toys. A portico extends the whole length of the parade, supported by Tunick pillars, where the company occasionally
occasionally walk. On Mount-Sion, Mount-Pleasant, Mount-Ephraim, and Bishop's-Down, are dispersed some
neat villas. That of the late celebrated writer, Richard
Cumberland, esq., is on Mount-Sion, and was his retreat
for many years.

The High Rocks, about a mile and a half south-westward
from the Wells, are much celebrated, and certainly form a
very romantic and striking picture. This spot is said to
have been first brought into notice by James II., who,
when duke of York, came hither with his duchesses and his
two daughters, afterwards the queens Mary and Anne.—
Burr's History of Tunbridge-Wells, 8vo. 1766. Beauties
of England and Wales, vol. viii. Kent; by E. W.
Brayley.

TUNBIDGE, a township of Vermont, in the county of
Orange, containing 1640 inhabitants; 20 miles N.N.W.
of Hanover.

TUNE, the title of a short melody, or series of notes, in
some specific measure. If vocal, it is a ballad; if merely
infrumental, it is a country-dance, a jig, or a hornpipe.
Our parochial psalmody confiits of psalm tunes. The
music of the "Beggar's Opera" is a medley of tunes se-
lected from the streets of all nations, that are never honoured
with the name of airs. See BALLAD.

Scotch, Irish, and Welsh fongs and dances, are called
national tunes. The tonadillas and lequiddillas of Spain are
likewise national tunes; as are the elegant little street-
ongs of Venice, called Venetian ballads; and such are the
pleasing and popular Provencal and Languedoocian melodies,
very different from the Vaudeville and ballad tunes of the
Pont-neuf and frote of Paris.

Thus far concerns tune as a substantive: as a verb, to tune,
is a preparation for the performance of music. A sound
can be made sweet, clear, and very perfect in itself, yet agree
with none of its relatives on any instrument, or in any key:
it is then said to be out of tune. The regulator of all sounds
in a musical composition is the key-note of a diatonic scale,
in which every sound must be in tune with all the intervals.
"Tune your harps to cheerful strains;" that is, render
your harps fit for tune or song. This belongs to intona-
tion, found, musical tones. Intonazioni perfida, in Italian,
is an expression for false intonation, out of tune, in finging or
playing. So in French, intonation vraie, intonation fausse,
are musical expressions for true or false intonation. Enton-
teur, in Romish cathedrals, is to give the tone of an
anthem, a hymn, with the organ; and in our cathedrals, of
the refraomes.

Our great lexicographer, though no musician himself, has
defined the expression, to tune, with true technical accuracy,
in saying that it is "to put instruments into such a state, as
that the proper sounds may be produced." Dr. Holder
well defines the word tunable, when he says, "all tunable
sounds, of which the human voice is one, are made by a
regular vibration of the founorous body, and undulation of
the air, proportionable to the acuteness or gravity of the
tone."

Caeufe and Measure of Tone, or that on which a Tone of a
Sound depends.—Sonorous bodies, we find, differ in tone;
1. According to the different kinds of matter; thus the
found of a piece of gold is much graver, than that of a piece
of silver of the same shape and dimenlions; in which case,
the tones are proportional to the specific gravities.
2. According to the different quantities of the same
matter in bodies of the same figure; as a solid sphere
of brafs, one foot in diameter, founds acuter than a sphere of
brafs two feet in diameter; in which case the tones are pro-
portional to the quantities of matter. See GRAVITY.

Here then are different tones connected with different
specific gravities, and different quantities of matter: yet
cannot the different degrees of tone be referred to those
quantities, &c. as the immediate cause. In effect, the
measures of tone are only to be sought in the relations of
the motions that are the cause of sounds, which are no where
do discernible as in the vibrations of chords.

Sounds, we know, are produced in chords by their vibrat-
ory motions; not, indeed, by those sensibie vibrations of
the whole chord, but by the inappreciable ones, which are
influenced by the sensibie, and, in all probability, are propor-
tional to them. So that sounds may be as justly measured
in the latter, as they could be in the former, did they fall
under our fenses: but even the sensibie vibrations are too
small and quick to be immediately measured. The only
recourse we have, is to find what proportion they have with
some other thing: which is effected by the different tension
or thickness, or lengths of chords, which, in all other respects,
excepting some one of those mentioned, are the fame.

Now, in the general, we find that in two chords, all
things being equal, excepting the tenion, or the thickness,
or the length, the tones are different; there must, therefore,
be a difference in the vibrations owing to those different
tensions, &c. which difference could only be in the velocity
of the courses and recourses of the chords, through the
spaces in which they move to and again. Now, upon
examining the proportion between that velocity, and the
things just mentioned, on which it depends, it is found to
be a demonstration, that all the vibrations of the fame chords
are performed in equal times.

Hence, as the tone of a sound depends on the nature of
those vibrations, whose differences we can conceive no other-
wise than as having different velocities; and as the small
vibrations of the same chord are all performed in equal
time; and as it is found true in fact, that the sound of any
body arising from one individual stroke, though it grows
gradually weaker, yet continues in the same tone from first
to last; it follows that the tone is necessarily connected
with a certain quantity of time in making every single vibra-
tion; or that a certain number of vibrations, accomplished
in a given time, constitutes a certain and determinate tone;
for the frequenter those vibrations are, the more acute is
the tone; and the fower and fewer they are in the fame
space of time, by so much the more grave is the tone; so
that any given note of a tone is made by one certain measure
of velocity or vibration, i. e. such a certain number of
courses and recourses of a chord or string, in such a certain
space of time, constitutes a determinate tone. See SOUND.

This theory is strongly supported by our best and latest
writers on music, Dr. Holder, Mr. Malcolm, &c. both
from reason and experience. Dr. Wallis, who owns it very
reasonable, adds, that it is evident the degrees of acutenes
are reciprocally as the lengths of the chords; though, he says,
he will not positively affirm, that the degrees of acutenes
answer the number of vibrations, as their only true caufe:
but his diffidence arises hence, that he doubts whether the
thing has been sufficiently confirmed by experiment. In-
deed, whether the different number of vibrations in a given
time be the true caufe, on the part of the object, of our
perceiving a difference of tone, is a thing which we conceive
does not come within the reach of experiment; it is suffi-
cient the hypothesis is reasonable.

Tune by Water. To see LASUS, HYPPASUS, and
WATER.

TUNEKA, in Geography, a town of Ruffia, in the go-
vernment of Irkutfs, on the Ilim; 84 miles N. of Bal-
ganskoi.

TUNES,
TUNES, in Ancient Geography, a town of Africa, mostly on a hill, to the W., and on the border of the port named Stagnum by Procopius, situated S.E. of Carthage, and surrounded by lakes and marshes. See Tunis.

TUNG, in Natural History, the name given by the Indians to a little insect, called by the Spaniards pique, which is very common and very troublesome in some parts of the East and West Indies.

It is of the size of a small flea; its place of laying its eggs is within the skin of the human body, and it diligently searches opportunities of doing this, and often succeeds in the attempt, to the great pain and trouble of the person who suffers it.

The creature, knowing that it shall be soon crushed to death under the skin, generally makes its way either under the nails, or where there is some callus on the surface; there it eats its way along, and, in fine, lays its eggs, which hatch into so many young ones, and spread themselves between the flesh and skin all over the finger and hand, if not prevented by taking out the old one in time.

The person often does not perceive the creature's getting in, it enters so gradually and easily; but he is soon advertised of the place where it is by a violent gnawing pain, the creature really eating its way as it goes along. The only way then to get rid of this insect, is to enlarge the orifice at which it entered, and take it out whole; the wound soon heals up, and there is an end of the matter. This may often be done with the point of a needle; but if not, it is much better to submit to the opening it with a lancet than to all consequences which otherwise will attend it. Obferv. fur les Coutumes de l'Afie, p. 184.

TUNGA, in Geography, a town of Africa, in the kingdom of Tunis.

TUNGBADRA, a river of Hindostan, which runs into the Kistnah, 7 miles E. of Rachore, in the country of Golconda.

TUNGERSHEIM, a town of the duchy of Wurzburg, on the Main; 9 miles N. of Wurzburg.

TUNGINSKOI, a town of Rufia, on the Irrut; 80 miles S.W. of Irkutsk. N. lat. 51° 18'. E. long. 103° 14'.

TUNGONG, a town of Meckley; 16 miles S.E. of Munypour.

TUNGRI, or TONGRE, in Ancient Geography, the name of a people who, according to Tacitus, succeeded that of German, by which were designated the first people who from the other side of the Rhine had abandoned their territory to the Gauls. But according to other authors, the Tongres inhabited the country of Liege for a long time before the entrance of the Romans into the Gauls. Conquerors of the Eburons, they succeeded them, so that they were entirely forgotten. Their conquests were very extensive; and though they were subjugated by the Franks, and Attila, commanding the Huns, completed their extermination, yet their bishops long after retained their title.

TUNGSTEN, in Mineralogy; Scheelites calcarea, Haüy.
The name tungsten, denoting heavy stone, was given to this mineral on account of its great specific gravity. Its appearance is not metallic, it has a yellowish or greyish-white colour, and is more or less translucent. The structure is lamellar; it is insusceptible by the blowpipe, but becomes opaque. When powdered and digested with nitric acid, it communicates to it a yellow colour. These properties distinguish it from carbonate of lead, white tin-dolce, and barytes. Tungsten occurs both massive and crystallized; the form of the crystals is most frequently the octahedron. The primitive form of the crystal, according to Haüy, is an acute octahedron, having the angle at the summit 62° 24', and the angle formed by the junction of the planes at the base of each pyramid 113° 51'. The principal planes of the crystals are smooth, the lustrous splendent. Tungsten yields to the knife, and is brittle; its specific gravity varies from 5.800 to 6.015. This mineral occurs with wolfram, (see Wolfram.) tin-dolce, magnetic iron-dolce, and brown iron-dolce: it sometimes forms large or small granular distinct concretions with flecked and shining surfaces. It is found in the mines of Cornwall, Sweden, Bohemia, and Saxony. Its constituent parts are,

| Acid of tungsten | - | 75.25 |
| Lime | - | 38.70 |
| Silex | - | 1.56 |
| Oxid of iron | - | 6.25 |
| Oxid of manganese | - | 0.75 |

Tungsten, in Chemistry, is the metal obtained from the ore of the same name above described. By some of the German chemists it is denominated Sch melium, from Scheele, who first pointed out the peculiar nature of one of its oxides.

Tungsten was first obtained in the metallic state by the Meffrs. D'Elhuyart from another of its ores called cunifram. New experiments have been since repeated by Vaucquelin, Klaproth, Meffrs. Allen and Aikin, and others, with various success, and very lately they have been confirmed by Buchholz.

This metal has been obtained by expelling the tungstate of ammonia to a violent heat. It has never been procured in the state of a solid button, or in large panes, but only in small panes as fine as sand, having a strong metallic lustrous, a light iron-grey colour, and slightly agglutinated. It is one of the hardest of the metals, and very brittle. Its sp. gr. according to the D'Elhuyarts, is 17.6; according to Meffrs. Allen and Aikin, 17.2; and according to the late experiments of Bucholz, 17.4, which is about the mean of the others, and probably very near the truth. Hence, next to gold and platinum, it is one of the heaviest metals.

This metal requires a heat of at least 175° of Wedgwood (probably much higher) to melt it. It is not attracted by the magnet. Exposed to heat in an open vessel, it gradually absorbs oxygen, and is converted into an oxide. Two oxides of this metal were formerly known, viz. the dark blue or black, and the yellow or tungstic acid; but besides these, Bucholz has lately described another of a dark brownish-red or reddish-brown colour, and which he considers to be intermediate to the other two. Of these, the blest brown and most important is the yellow oxide, or tungstic acid. This oxide is without taste. It is insoluble in water, but remains long suspended in it. It has no active or vegetable colours. It is flated to be composited of

Tungsten | - | 80
Oxygen | - | 20

Little is known of the nature and composition of the other oxides of this metal, so that we cannot with any degree of certainty ascertain the weight of its atom. This metal combines with sulphur and phosphorus, and forms alloys with many of the metals; but these compounds do not appear to be interesting. The yellow oxide, or tungstic acid, seems capable of forming compounds with all the alkaline, earthly, and metallic bases, though very little is known at present of the nature of these compounds.

TUNGURAGUA, in Geography, a mountain of Peru; 21 miles S. of Riobamba.

Tunguragua. See Maranon.

TUN-
TUNGUSES, a branch or division of the Mandchures, or Mandhu, who originally composed one people with them, as appears not only from their mutual resemblance in features, manners, and customs, but chiefly from their agreement in language. The Tunguses call themselves "Evees", probably from the first ancestor of their race; or, like most of the Siberian tribes, from the word which in their language signifies "men". They are called Tunguses only by the Oltiaks of the Yenifley and the Tartars. By the Mandhus, they are denominatet Soloni, protectors, or Oranoffiun, people with reindeer. The extensive deferts in which they now inhabit, reach from W. to E. from the Yenifley across the Lena, as far as the Amoor and the Eastern ocean. From S. to N. they keep between about the 53rd and 65th degree of N. lat., and accordingly touch neither upon the Soungarian borders, nor upon the coasts of the Frozen ocean. Being of an accommodating disposition, they have admitted into their seats Oltiaks, Samoyedes, and particularly Yakutans. The districts now mentioned lie mostly in the government of Irkutsk; nevertheless, some few races of the Tunguses are reckoned as belonging to the government of Tobolik. The first accounts which the Russians obtained of these people were received from the Oltiaks of the Yenifley; and in the year 1667, Coffacks were first sent from Mangajei against the Tunguses, to force them into submission. On occasion of these Russian attacks, the Tunguses displayed a greater degree of courage than the other Siberians; nor were they brought to the imperfect state of submission in which they are now held, till the latter half of the last century. By the enumeration of the year 1766, they confided of 12,000 males; but besides these, different Tunguiian tribes wander among the Siberian nations, who together amount to about 1700 yoorts, or families. Although they constitute one of the most numerous nations of Siberia, yet, on account of their roaming mode of life, few items of them can be actually registered. The Tunguses who nomadize about the coasts of the Eastern ocean, are known under the name of "Lamuts". Of these, in the forementioned year, only about 400 men were enrolled to the payment of tribute.

The Tunguses are indefatigable in the chase, and are constantly changing their habitation. In the season of fishing and of collecting berries, they remain for some time nearly stationary; and then they remove their tents, leaving their supplies of dried fish and berries in large boxes, constructed on trees or poles, for the benefit of themselves and their tribes, in travelling during the winter. They feel callous to the effects of heat or cold; their tents are covered with shawmoy, or the inner bark of the birch, which they render as pliable as leather, by rolling it up, and keeping it for some time in the flame of boiling water and smoke. Their winter drefs is the skin of the deer, or wild sheep, dressed with the hair on it; a breast-piece of the same, which ties round the neck, and reaches down to the waist, widening towards the bottom, and neatly ornamented with embroidery and beads; pantaloons of the same materials, which also furnish them with short stockings, and boots of the legs of rein-deer, with the hair outward; a fur cap and gloves. Their summer dresses only differ in being simple leather without the hair. They are religious observers of their word, punctual and exact in traffic; some few are drilled; but most of them are Demonsolitarians, have their forcerers, and sacrifice chiefly to evil spirits. They commonly hunt with the bow and arrow, but some have rifle-barrelled guns. Instead of burying the dead, they place the body, dressed in its belt apparel, in a strong box, and suspend it between two trees. The implements of the chase belonging to the deceased are buried under the box. Except a forcerer is very near, no ceremony is observed; but in his presence they kill a deer, offer a part to the demons, and eat the rest. They allow polygamy, but the first wife is the chief, and is attended by the rest. The ceremony of marriage is a simple purchase from her father; and the price is from 20 to 100 deer, or the bridegroom works during a stated time for the benefit of the bride's father. The unmarried are not remarkable for chastity. A man will give his daughter for a time to any friend or traveller to whom he is attached; if he has no daughter, he will give his servant, but not his wives. They are in size somewhat below the common stature, very active, and have lively inviting countenances, with small eyes; and both sexes are very fond of brandy. The Tunguses wander about the mountains, and seldom visit such plains as are occupied by Yakuts; but frequently resort to the solitary habitations of the Coffacks, appointed to the different flanges; as they are there generally supplied with brandy, needles, thread, and such trifles as are requisite among them and their women, who always accompany them in their wanderings. See Mandchures.

TUNGUSKA, a river of Russia, which rives in lake Baikal, and runs into the Enifie, about 20 miles S. of Enifie; in the former part of its course it is called Angara, in the latter Tungulka or Yenifley.

This Upper Tungulka, for there are three rivers of the same name, which bears the name of Angara till it unites with the Ilim, takes up several other rivers, as the Koda, the Thalovetch, the Iriki, the Kamenka, the Olenka, and the Tatarkiaia, all on the right; and to the left, the Oka, and the Tihuna or Oda. This Tungulka has for the most part a bed strewn with rocks, and forms several cataracts, five of which are very considerable. Although it be navigable, the navigation is toilome and difficult. The Middle or Podkammenia Tungulka rives in the government of Irkutsk, among the Baikal mountains, not far from the origin of the Lena; and after a course of about 850 versts, and after having, on the right, taken up the Thina and the Thorna, falls into the Yenifley in 62° N. lat. The Lower or Niznej Tungulka takes its source in the same district, but bends its course northward, and after having taken up on the left the rivers Niepa, Svetlaia, with many others, and on the right the Rosmakka, the Turija, and the Gorela, and running a course of about 1500 versts, strikes into the Yenifley, not far from Turukanik. In this river are several dangerous whirlpools.

TUNGUSKOI, Ust, a town of Russia, in the government of Tobolik; 24 miles S. of Enifieik, at the confluence of the Enifie and Tungulka.

TUNGUSLI, a town of Russia, in the government of Tobolik, on the Obi; 56 miles S. of Tara.

TUNIA, or Tunja, a town of South America, in the vicerey of New Granada; 60 miles N. of Santa Fe de Bogota. Tunia, founded in 1539, was formerly an opulent town, but has now declined, the inhabitants not exceeding 400. The edifices retain marks of former splendour, and the parish-church might well serve for a cathedral. Here are three convents, that might answer the marks of manufacture. N. lat. 5° 5'. W. long. 72° 50'.

TUNIC, in Botany and Vegetable Physiognomy, the English name of the appendage to certain seeds, termed Arillus in Latin; see that article, where, however, the explanation given by our predecessor, Dr. Woodward, refers only to the use of the term Arillus in the genus Carex. The Tunic, or Arillus, is attached to the base only of the seed, immediately adjoining to the Scar, Hilum, and envelops the rest of the seed more or less completely and closely. Its size and texture, as well as colour, are various. In the Spindle-tree,
TUN

Tree, *Euonymus*, the part in question is a pulpy, wrinkled, orange-coloured wrapper; in *Afzelia* a beautiful, firm, close, scarlet cup, embracing great part of the lower half of the black hard seed; in *Hippophae* a double membranous, but tough, coat, within the pulp of the berry; in *Myrsitica*, the netting, a jagged, brittle, lathyrohedral, complex integument, well known by the name of Mace. *Narthexium*, and great part of the *Orchidaceae*, have each of their minute seeds clothed in a lax membranous Tunis, extending beyond them at each end, and probably designed to give them buoyancy, like a fort of wing. *Oxalis* has an elastic pouche-like Tunis, serving to project its polished seeds to a distance, like the hard rigid bivalve Tunis of *Dillamnum*, *Boronia*, and their allies. (See Rutaceae.) That curious genus named by M. Konig, in Ann. of Bot. v. 2. 560, *Bliza*, the *Ake* of Guinea and the West Indies, has each seed supported by a large, fleshy, lobed Tunis, for which alone, as a delicate article of food, the tree is cultivated. Some difficulty occasionally arises in distinguishing between a real *Arilus* and the *Tefla* of certain seeds, or at least the outer coat of the latter. (See Testa.) This difficulty occurs in the order of *Apertifidae*, *Myrtaceae* and *Gynophyllaceae*, while the real capsules of *Germium*, *Pelargonium*, *Malva*, &c. have, on the other hand, been sometimes called *Arilli*.

TUNICA, a kind of wailcoat, or under garment, worn by the ancients, both at Rome and in the East. The common people ordinarily wore only a tunica; but those of better fashion wore a toga or gown over it. The philosophers wore a gown without a tunica, as professing to go half naked.

The tunica was peculiar to the men; the under garment of the women not being called tunica, but *foba*.

The fenators wore their tunicas enriched with several little pieces of purple, cut in form of large nails; whence it was called *laticlavias*: the knights had less nails on their tunica, which was hence called *angustilavias*: the common people wore their tunicas without any *clavi* at all. And it was by these three different forts of tunicas, that the three different orders of the Roman people were distinguished in habit. It has been a common opinion, that the *angustilavias* distinguished the knights from the common people, in the same manner as the *laticlavias* did the fenators from those of the equestrian rank. But Rubenius averes that there was no manner of difference between the tunicas of the knights and those of the commons. As to the perfons who had the honour of wearing the *laticlavias*, it may be maintained, says Kennet (Ant. of Rome, p. 308.), that the fons of those fenators who were patricians had the privilege of using this velt in their childhood, together with the *prætexta*. But the fons of such fenators as were not patricians, did not put on the *laticlavias* till they applied themselves to the service of the commonwealth, and to bearing offices. Yet *Augurius* changed this custom, and gave the fons of any fenators leave to alluminate the *laticlavias* presently after the time of their putting on the *toga virilis*, though they were not yet capable of honours. And by the particular favour of the emperors, the same privilege was allowed to the more splendid families of the knights. In the declension of the empire, the tunicas did not only reach down to the angles, whence they were called *talares*, but had sleeves too coming down to the hands, whence they were called *thiodotes*. And now it was counted as scandalous to appear without sleeves, as it had been hitherto to be seen in them; and, therefore, in the writers of that age, we commonly find the accursed perfons at a trial habitated in a tunic without sleeves, as a mark of disgrace and infamy.

Vol. XXXVI.

Beside the different forts of tunicas above-mentioned, there was also the *tunica palmata*, worn by generals in a triumph, and perhaps always under the toga picta. It hath its name either from the great breadth of the clavi, equal to the palm of the hand, or else from the figures of palms embroidered on it.

Among religious, the woolen shirts, or under garments, are stiled *tunicas* or *tuniques*.

TUNICA, in Anatomy, a technical name applied to the membranes which compose various organs; thus the serous and mucous membranes, and the muscular fritum of the stomach or intestines, are called their tunicae: in the same way we have the tunicae or coats of the eye, the blood-veffels, the teftes, &c. &c.

TUNICA, in Botany, a name adopted by Dillenius, as he himself avows, from the apothecaries, and perhaps originally corrupted by them from *Vitónica*, or *Botónica*, its synonyms. Thefe names all belong to the *Flus Caryophyllyus*, *Clave-flowers*, *Carnation*, or *Pink*; and Dillenius was led to the above choice, for the purpofe of removing the ambiguity arising from *Caryophyllyus*, (fee that article,) as properly belonging to the valuable fpice called Claves. *Linnaeus*, not satisfied with either appellation, invented a new one, which has been generally approved. See DIANTHUS.

TUNICATED ROOTS, among Botanists, such as are formed of a multitude of coats surrounding one another. See Root.

TUNIQUK, in Geography, a town of Hungary, on the river Samos; 6 miles E. of Efced.

TUNIS, a city of Africa, and capital of the country so called, situated on a rising ground, on the west bank of a lake, or rather a shallow in form of a lake, communicating with the gulf by a narrow channel. The situation of Tunis, probably first chosen by some fishermen, to whom that of almost all the marine cities is to be ascribed, appeared to the inhabitants to be preferable to that of Carthage; as soon as, enriched by rapine, they dared openly to attack the trade of every nation. The eminence on which the ruins of Carthage, N.E. of Tunis, that ancient rival of Rome, advances into the middle of the gulf, and on that account would have exposed the Tunifians to be taken by surprife. This city was called, by Diodorus Siculus, "Léon Tunétas," that is, White Tunis; perhaps from the chalky cliffs which lie round it, when viewed from the sea; and was founded about 1250 or 1300 years B.C., as appears from Herodotus and the Parian chronicle. It is surrounded by lakes and marshes, which, however, do not render it unhealthy, which is, by Dr. Shaw, attributed to the number of mallich and myrtle trees, roemarfly, and other gummy and aromatic plants, with which they heat their ovens and their baths; the water is obtained a mile distant, for the general use of the inhabitants. The infected atmosphere of Tunis is attributed by baron de Tott to the putrid emanations of a channel, which conveys all the filth of the city to a neighbouring lake; which lake likewise produces exhalations that appear no less dangerous; and the falsibility of Tunis, he says, can only be attributed to the depth of the valley, which comes down to the gulf, and which, by attracting the vapours of the channel and the lake, does not allow them to acquire that degree of corruption which would render them hurtful to the constitution of the inhabitants. The Tunifians are the most civilized nation of Barbary, with little of the insolent haughtiness of the Algerines; and affairs with the government are transacted with ease: the English, French, Dutch, and several European states, having confuls here, who are treated with civility and respect. Including the suburbs, Tunis is, by Dr. Shaw, supposd to
TUNIS.

to be rather more than three miles in circumference, and
the number of houses 10,000 or 12,000, and of inhabitants
about 50,000. But Bruns, on the authority of Sprengel,
reckons the houses at 12,000, and the inhabitants, by an
exaggerated statement, at 200,000 or 200,000, of whom
more than one-half perished by the plague of 1789. There
are few buildings of any magnificence, except the great
mosque, the bey's palace, called Barta, at some distance
from the city, encompassed with walls and flanked with
towers, and a few others: there are five gates, but none of
them grand. Near the centre of the city is a piazza of vast
extent, which is filled formerly to have contained 3000 ships
for the sale of woollen and linen goods; in the manufacture
of both which this city has been long famous. Here are
several colleges and schools, with many learned men and
deleuters. The Mahometans, though thinly mantained by the
public; the janizaries are quartered in barracks: other
public buildings are, an exchange, a custom-house, and an
arsenal. On the side of a canal is the fortress of Goletta,
but not carefully supported. The chief defence is the
castle. In 1655, Tunis was bombarded by the English
under admiral Blake. N. lat. 36° 44'. E. long. 10° 20'.

Tunis, the central region of Northern Africa, usually digni-
ified with the title of kingdom; bounded on the north and
cast by the Mediterranean, on the south by Tripoli, and on
the west by Algiers. This is the western part of the proper
Africa of antiquity, and was formerly the chief seat of Car-
thagian power; and in the middle ages, Tripoli was sub-ject to Tunis, which was feized by Barbarossa in 1533.
It is now about 200 miles from north to south, and 120
from east to west. According to Disfontaines, this king-
dom begins in the east at the island of Garib, and terminates
in the west at the river Zaine, called also Tufca or Sufca.
After the decline of the Roman empire, this country came
under the power of the Vandals and Goths; and after the
decline of the Vandals and Goths; and after the
invasion of the Moors, was successively governed by the
viceroyes, called emirs. It afterwards became subject to the
emperor of Morocco. For a space of time it was an in-
dependent and powerful kingdom. In the year 1538, it
was overrun by Barbarossa; and notwithstanding the ene-
devours of Charles V. and his succes5ors, the kingdom was
made a province of the Ottoman empire, under the dominion
of Selim II., by Sinan, bashaw of the Levant. At present
the whole kingdom is divided into two circuits, the summer
and the winter, which the bey makes in perfon through his
dominions at those two seacons. The summer circuit, or
northern district, is by far the most pleasant, fertile, and
populous, and has the greatest number of cities, villages,
and downs, and carries the fairest appearance of plenty,
prosperity, and cheerfulness of the two; advantages owing
to the mildness of its government, and its being freer from
tyranny and oppression than that of Algiers. The Tu-
nisians, in general, are like the Algerines; a mixture of
Turks, Moors, Kabits or indigenous inhabitants of the
mountains, Arabsians, Jews, and Christhians, merchants, and
flaves; with this difference, that they are here polite and
civilized. They are much more kind and humane to their
flaves, in general; though they treat the knights of Malta
with greater severity. In other respects, the Tunisians are
courteous to strangers; and all affairs with the regency are
transacted in a very friendly manner: the confuls that reside
here are treated with greater affability and condescension,
juricrce, and dispatch, than in any other court on the African
coasts: in a word, this nation hath, for many years, been
more intent upon trade, and the improvement of their manu-
factures, than upon plundering and cruizing; upon which
account, it hath cultivated the alliance of many Christlian
powers. The drefs of the Tunisians, of both sexes, is much of
the same fashon with that of the Algerines. The women
are handsome, neat, and more familiar: they go, indeed,
veiled out of doors, but are allowed to be seen and converse
with strangers, their husbands not being tainted with such
jealousy as reigns among other Aftricans. The religion is
the fame as that of the Algerines. This kingdom, as well
as Algiers, and others along the Barbary coast, are very
subject to earthquakes, which commonly happen after heavy
rains, at the end of the summer, or in autumn, and are
often felt at a great distance from land, where the depth of
water hath been above 200 fathoms: in other refpects, the
country is, for the most part, as healthy and fertile as any
under the same climate. The northern parts, which are the
bell cultivated, enjoy a wholesome temperature. The
winds are mostly from the sea, confequently refreshing;
but those that blow from the southern fandy desertcs are quite
fuffocating, especially as they prevail mostly in July and Aug11: if they continue
five or fix days successively, the inhabitants are obliged to
keep themselves cool by sprinkling their floors with water.
The sea-winds, that blow well-north-west and north, bring
dry weather in summer, and rain in winter; but the easterly,
as well as the southerly, are for the most part dry, though
louring with a fandy, cloudy atmophile in moft feasons.
Their first rains commonly fall in September, and sometimes
in October; about three weeks after which, the Arabsians
break the ground, low their corn, and plant their beans,
bayery, lentils, and garvancos; their harvest usually begins
in May, or the beginning of June, according to the quality
of the preceding feaon. The Tunisians are much more ad-
dicted to agriculture than their neighbours, the Algerines,
and are for making the moft of every inch of their ground.
 Mines of metal and minerals they disregarde; though Dr.
Shaw oberved, among the mineral productions of Tunis,
alabaster, cryf tal, bollc, plumbago, iron, and lead. The
caffle are small and slender, and the horses have degenerated.
Here are lions, panthers, hyenas, chakals, and other fer-
orous animals. The manufactures are velvets, silks, linen,
and red caps worn by the common people. The govern-
ment of Tunis at prrefent, like that of Algiers, is altogether
depopat; but with this difference, that there it is elective,
and here not only hereditary, but the bey hath power to
name which of his fons he pleafes for his fuccesfor, with-
out regard to eldphanship; or, in cafe he doth not think
worthy, he may appoint a brother, or a nephew, to the
fuccesfor; in all other cafes, likewise, they are equally ab-
olute and independent, either on the Pore, or the Douwan
or Divan. They were once, indeed, under the protection
of the former; and the rapacious extortion and tyranny of
its bashaws had, in some measure, obftrided them to fchake
off their yoke, and form a government of their own, which
they fettled in fuch a manner, that their deys, as they were
then called, could do nothing without the advice and con-
fent of the Douwan or Divan; but they have found means,
in time, to rid themfelves of this uncaufy clog also, though
they
they still retain a kind of form or shadow of both. The Porte hath a baffal reeding here, but in power and influence he is a mere cypher, and serves only to remind the Tunisians, that they were once subject to the Turkish sultans. The Douwan, being chiefly composed of friends and creatures of the Bey, is rather assembled to give a forced approbation to their resolutions, than to consult them about the justice or expediency of them. At the first settling of this new form of government, the deyhip was the supreme dignity, as it is still at Algiers; as that of bey was the next in rank, but wholly subordinate to it. However, having since built their power upon the ruins of the deys, they have, by degrees, raised the beyhip to be despotic and independent; and by making it hereditary, have prevented, in a great measure, those frequent depredations, rebellions, and mafacres, which are the almost constant concomitants of the regal authority, wherever it is made elective. Yet far from preventing jealousies, cabals, and rebellions, in spite of all their precautions, the dignity oftener falls to the share of that fon who has been able, by his address, to form the strongest party, than to him who hath been appointed to it by the father. Hence it is, that whenever the throne becomes vacant, whether in the course of nature, or by open treason and rebellion, it is seldom filled up again without a great deal of bloodshed, rapine, and violence, in proportion to the number of competitors. In the summer the bey of Tunis refides in the northern part, and in the winter retires to the south, where is a lake of considerable extent, the "Palus Tritonis" of antiquity. The authority of the bey extends over a large tract of country, of which he receives the tribute, with a small army, which marches out annually for that purpose. Tunis, which had formerly a considerable commerce with France, exports thither corn, oil, beans, lentils, wax, wool, hides, and Morocco skins; and receives, in exchange, Spanish wool, Languedoc cloth, vermilion, sugar, pepper, cloves, wine, brandy, paper, hardware, iron, and steel. The Italian trade is wholly carried on by the Jews, who fend the fame commodities to France, and import from thence Spanish cloth, damasks, several sorts of silk and woollen stuffs, gold and silver tiifue. The French pay 3 per cent. for all the goods they bring from France, and the Jews 10 per cent. on their imports from Italy. The Turks and Moors export to the Levant woollen stuffs, lead, gold-duft, and chequins, and a vast number of bales of caps; and bring, in return, silks, calicoes, iron, alum, and vermilion. They fend much the fame kind of commodities into Egypt; but the oil that is carried thither must be put up in jars, and not in calts, because the greatest part of it is designed for the lamps of Mecca and Medina; and the Arabian would think it polluted, as the vessels might formerly have contained wine. They import, in exchange, from thence, linen, cotton, rice, flax, and coffee. The number of French ships freighted at Tunis, by Turks, Moors, and Jews, has amounted yearly to one hundred and fifty to the Levant, and fifty for France and Italy; as for those of the English, their number is uncertain. All public conventions and instrumens are written in the Arabic tongue, but the public commerce is commonly carried on by the medium of the Lingua Franca. Gadames, or Galamis (which see), had formerly a flourishing commerce; but it has ceased since the caravans palling from Tripoli to Tombuctoo do not flop there, but at Agadez. The caravans of Tombuctoo bring slaves, ostrich feathers, ivory, and amber; those of Sallee, gold, as well as thosfe of Gadames, which also bring Negro slaves. Ruins of ancient monuments are found near Zowas, Spitola, Chaffa, Thridifta, Hammamcel, and Chispa. Desfontaines mentions in particular with admiration a large and beautiful amphitheatre near Elgum. Some vestiges are also found here and there of an ancient Carthagian aqueduct, which served to draw water from the springs of mont Zouan; but there scarcely exist any other remains of Carthage. Near the river Mejerdja are still seen some ruins of Utica, which are, at present, at the distance of about 4000 fathoms from the shore; though this city was formerly a sea-port.

At Tunis, accounts are kept in piastres of 52 aspers, each asper being divided into 12 burbes. The coins consist of gold tunstans, valued at 100 aspers; of silver naturas (a square or shapeless coin), valued at 52 aspers; and of doubts, valued at 24 aspers. The burbes are a small copper coin. Gold, silver, and pearls, are weighed by the ounce of 8 termini; and 80 ounces of Tunis = 81 ounces English troy. The cantaro, which is a weight for merchandise, contains 100 rottoli, weighing about 111 pounds avoirdupois. The castillo, a corn measure, contains 18 wents, or 216 liras; 53 castii = 67/4 English quarters. The mattaro, an oil measure, is = 32 rottoli, = 351 pounds avoirdupois, and is about 5 English gallons. The mattaro, wine measure, is only half that for oil measure. The pic, long measure, is for woollen 208.3 French lines, or 264 English inches, for silk 24½ English inches, and for linen 18¾ English inches.

TUNKAT. See Toncat.

TUNKERSTOWN. See Ephata.

TUNKHANOCK, a township of Pennsylvania, in the county of Luzerne, containing 884 inhabitants.

Tunkhanock Creek, a river of Pennsylvania, which runs into the eafth branch of the Susquehanna, N. lat. 41° 31'. W. long. 75° 37'.

TUNNA, in Commerce, a measure of grain in Sweden, equal to four buhels five quarters Winchester measure.

TUNNAGE, or Tonnage, a duty or custom due for merchandise brought or carried in tons, and such like vessels, from or to other nations; thus called, because rated at so much per ton.

Tonnage is properly a duty imposed on liquids according to their measures; as poundage is that imposed on other commodities according to their weight. See Poundage and Customs.

Tonnage is also used for a certain rate paid the mariners, by the merchants, for unloading their ships arrived in any haven, after the rate of so much per ton.

TUNNEL, or Tunnei, an instrument through which any liquor is poured into a ve defe.

Part of a draught of a chimney, above the mantle-piece, is also called by the same name.

Tunnel is a large subterraneous arch, driven through a summit or hill, for the passage of boats upon a canal continued through the same; also, smaller drains or culverts are called tunnels; and the execution of making and driving them is called tunnelling.

Tunnel-Pit, a well or shaft sunk to the line of an intended tunnel, through which the fluff extracted from it is drawn up to the surface.

Tunnel-Kiln, in Agriculture, a term applied to a lime-kiln in which coal is burned, in contradistinction to that in which wood, peat, and other such matters are used, termed the flame-kiln. See Lime-Kiln.

There is much left waste of heat in the former forts than in those of the latter, and they have much advantage in the quick dispatch in drawing the lime; as, in the flame-kilns, after the matters are burnt, much time is lost by waiting until the lime be cold, and by emptying it at the mouth.
The most regular method is, to cleanse and tun full as it comes to a due ferment, and gets a good head; for then it has the mellow strength to clear itself. What works out of the cask is to be supplied with fresh beer of the fame brewing.

Tunning-Diff, a term applied to a large wooden dish, employed with a funnel, in tunning malt liquor.

TUNNUNDTORBIK, in Geography, an island near the coast of East Greenland. N. lat. 66° 45'. W. long. 46° 50'.

TUNNY, in Ichthyology, a name given by us to the Spanish mackerel, a large fish of the scomber kind, called by authors thymus and argynnus, by Salvian limofa, and pelamys by Ariritole, Aelian, and the other old writers. See Scomber.

In the lochs on the western coasts of Scotland, as well as in the Mediterranean (see Scomber Thymus), tunnies are also found in pursuit of herrings, and fold to people, or others carry them fresh to the country markets, or salt and preserve them in large casks. The pieces, when fresh, look like raw beef, but when boiled turn pale, and have somewhat the flavour of salmon. One of them has been found to weigh four hundred and fifty pounds.

TUNS, Thes, in Geography, rocks in St. George's Channel, near the coast of Ireland, and county of Wexford; 3 miles N.E. from the Saltex islands.

TUNSLA, a town of Sweden, in the province of Savolax; 52 miles N. of Nyflor.

TUNSTALL, JAMES, D.D., in Biography, a learned divine, was born about the year 1710, and educated at St. John's college, Cambridge, of which he was a tutor and fellow. In 1741 he was chosen public orator of the university, and became one of the chaplains to archbishop Potter. It was said of him, that many came to Lambeth humble, but no one left it but Dr. Tunfall. He was created D.D. in 1744, and in 1757 took possession, upon an exchange, of the valuable vicarage of Rochdale, in Lancashire; but his life terminated in 1772. He had a controversy with Middleton concerning the letters between Cicero and Brutus, of which he had made great use in his "Life of Cicero," and which Tunfall not only refuted, but proved, in the judgment of Markland, to be suppositional. He was also the author of some other publications: the principal of which is his "Academia, Part I., containing several Discourses on the Certainty, Distinction, and Connection of Natural and Revealed Religion," continued, as it is suppos'd, by Part II. printed after his death, under the title of "Lectures on Natural and Revealed Religion, read in the Chapel of St. John's College, Cambridge." Nichol's Anecdotes.

TUNSTEDE, or TUSTENDE, an English D.D., and a learned musician, who flourished in the fourteenth century. Pits, Bale, Tanner, and all our biographical writers, speak of him with respect. And among the MSS. at Oxford, we found, in 1780, a Tract on Music, entitled "Quatuor Principalia Artis Musicæ," by this writer, dated 1551, Bodl. 515. bound up with other tracts.

What this author calls the four principia of musica, will beat appear from his own manner of dividing the work. In the first part or principal, consisting of nineteen chapters, he treats of music in general, its constituent parts and divisions. Secondly, of its invention, intervals, and proportions; twenty-four chapters. Thirdly, of plain chant and the ecclesiastical modes; fifty-eight chapters. Fourthly, of measured music or time, of difant, and their several divisions. This last principal is divided into two sections, of which the first contains forty-one chapters, and the second forty-
TARAZ. Hence perennial, but the town of Tepic, on the west branch of the Nile; 6 miles N.N.W. of Amuris.

TUNUPOLON, in Zoology, the name of an East Indian species of viper, found principally in the island of Ceylon; it is of a small size, and of a fine, skin-like gloss, beautifully variegated with shades of brown. Ray.

TUONI ECCLESIASTICI, Ital., in Myces, tones of the church. (See CANTO FERMO and MONI.) The modi autenticu are the odd numbers 1, 3, 5, 7; and the modi plagal, the even numbers 2, 4, 6, 8.

TUONO, Ital., a musical tone or found. (See TONE.) “Tuoni,” says the Crufca, “appello a’ mufici, torno i gradi, per cui paflano fucceffivamente le voci e i fuoni nel falire verfo l’alimento, e nello fcendere verfo il grave colla regolata interpoftione de’ femettoni e loro lugghi per riempire gli intervalli maggiori confonanti, e diffonanti.”—“Tones among fufonic are those degrees or graduations by which voices and instruments ascend and descend fucceffively from the grave to the acute, and defcend from the acute to the grave, with the interpoftione of the neccafary femettoni to fill the greater confonant and diffonant intervals.” Varchi.

In this arrangement of the scale, all the fimple and perfect confonances are found, that is, the key-note, the fourth, the fifth, and the diapason or octave.

TUP, in Rural Economy, a term often applied to a ram in different districts.

TUPELO TREE, in Botany. See NIss.

TUPERSDORF, in Geography, a town of Saxony, in the Vogtland; 4 miles N.E. of Oelcnitz.

TUPES, a town of Bohemia, in the circle of Chrudim; 8 miles N.W. of Chrudim.

TUPICA, a town of Peru; 30 miles S.E. of Lipes.

TUPINAMBAS, a nation of South American Indians, who inhabited near Rio Janeiro, but after the settlement of the Portuguese, removed towards the river of the Amazonas, where the Tapayos are now their descendants.

TUPISTRA, in Botany, an unexplained name, used by Mr. Ker, in Curt. Mag. t. 1655.—The plant which bears it, T. spumalida, was imported by Meflis Loddiges from Ambonya, in whose flower it flowered, for the first time, in April 1814. The learned author did not examine the fpecimen in a perfect flate, so that his ideas, like our, muft be chiefly derived from Mr. Edwards’s figure, the accuracy of which there is no rea fon to doubt, and from which the close affinity of this plant to Orontium japonicum is apparent. No botaniff however is as yet sufficiently acquainted with the parts of fructification in either to determine their generic character, or to distinguish them generally from O. aquatium. See ORONTIUM.

T. spumalida has a perennial tuberous root, with thick fibres. Stem none. Leaves few, eréct, equitant, lanceolate-oblong, entire, coriaceous, smooth, about two feet long. Stalk solitary, eréct, not a fpan high, fimple, cylinfrical, smooth, firm, purplish, bearing a dense fpake of numerous fcentless flowers, of a pale digny, or brownifl head-colour, quite feflile, with a bractea at the bafe of each. Calyx none. Corolla of one petal, bell-shaped; the limb in fix or more fpeaking segments, each bearing on its disk a fefellite, two-feflile, but feemingly imperfect, anther. A cylindrical body, four-feflile at the top, in the centre, looks like a fern and flagma.

TUPPER, in Rural Economy, a term frequently applied to a breeder and dealer in tups, in some districts, as those of the midland parts of the kingdom. See RAM.

TUPPA, a name given in Thibet to children, who at the age of eight or nine years are admitted into the mona-stery at Tshang-Loomboo, and who are occupied in receiving the inftruction suited to their age, and the duties for which they are defigned. See TSHINBA.

TUPPING, in Rural Economy, a term applied to the impregnating of ewes by the tups or rams.

TUPPING-TIME, the period or season of putting tups or rams to the ewes. It should be done neither too early nor too late, as in the former case the lambs are dropped too much in the cold weather, while in the latter they are liable to be of inferior size for the markets. It is confec-\.uently best done according to the nature of the situation and circumstances. See SHEEP.

TUQUILLIGASTA, in Geography, a town of South America, in the province of Tucuman, on the Salado; 4 miles S. of St. Yago del Eferro.

TUR KABAIN, a town of Artificial Turkey, in the government of Muful; 20 miles E. of Nifhibin.

TURA, a river of Ruflia, which rifes about 40 miles W. of Werchotura, in the province of Ekafrinburg, and runs into the Tobol, opposite Turfanpo, in the government of Tolbofik. See TOBOL. —Alfo, an island in the Grecian Archipelago. N. lat. 35° 34'. E. long. 24° 15'.—Alfo, a town of Hungary; 24 miles W. of Topoltzlan.

—Alfo, a town of the county of Tyrol; 24 miles S.W. of Trent.

TURA Bamba, a fpacious plain, in which flands the city of Quito.

TURALINZES, one of the fhir colonies which con-\rained for themselves permanent habitations, when the Tartars subjugated Siberia in the 14th cen:ury; hence their name (from Tura, fignifying in the Tartar language a town), which fignifies the fame with fettes. Ever since their arrival, they have inhabited the region on both fides of the river, which from them is denominated the Tura, between the Tava and the Her, in the Ekaterinburg and Topolbofik districts of the governments of Perme and Topolbofik. Their oldest fixed seat was the city of Tchinghiden; but when Yermak made the conquest of these parts, the khan Yepansi refided higher up the Tura in a city, which after their reftoration by the Ruflians was named Turenso, and bears this name at preient, though it is alfo called by the Tartars Yepantchena.

TURAMIANA, in Ancient Geography, a town of Spain, in the eallern part of Bética, S.W. of Urfi. According to the Itinerary of Antonine, it was on the route from Cathulo to Malacca, between Urfi and Murgi.

TURAN, in Geography. See TARAZ.

TURANCOURCHY, a town of Hindooftan, in Madura; 12 miles N. of Nattam.

TURANO, a town of Hindooftan, in Malwa; 18 miles N.E. of Oungin.

TURANO, a town of Naples, in Calabria Citra; 5 miles W. of Bifguanoo.

TURAPHILUM, SIMI-ELLILAI, in Ancient Geography, a town of Africa, in Mauritania Cafrarenis, situated in the mountains of the interior, S. of Caeimoun.

TURATTE, in Geography, a town of the island of Celeshe, and capital of a powerful kingdom: 180 miles N. of Macallar.

TURBA, in Ancient Geography, a town of Novempo- phulani, belonging to the Aquitanis, in Gaul.

TURBAH, TURBAH, the head-drefs of most of the Eastern
Eastern and Mahometan nations; confiding of two parts, viz. a cap, and a fath of fine linen or taffety, artfully wound in divers plaits about the cap. The word is formed from the Arabic دار, دار, or دار, دار, which signifies encomplia, and دار, دار, band or band, which signifies fathes, or ʃoar, or band; so that durant, or turban, or turbant, only signifies a ʃoar, or fathes, tied round; it being the fathes that gives the denomination to the whole turban. The cap is red or green, without any brim, pretty flat, though roundish at top, and quilted with cotton, but does not cover the ears. About this is wrapped a round piece of fine thin lincon or cotton, in several wreaths variously disposed.

There is a good deal of art in giving turbans the fine air; and the making of them up constitutes a particular trade, as the making of hats does among us.

The emirs, who pretend to be defended of the race of Mahomet, wear their turbans green: those of the other Turks are ordinarily red, with a white fathes. The gentled people have frequent changes of turbans. M. de Tournefort observes, that the turban, all things considered, is a very commodious dres; and that he even found it more easy to him than his French habit.

The grand signor’s turban is as big as a buffel, and is so exceedingly refreshed by the Turks, that they dare not touch it. It is adorned with three plumes of feathers enriched with diamonds and precious stones; he has a mi-nifter on purpose to look to it, called turbanogla. See Coronet.

That of the grand vizir has two plumes; so have those of divers other officers, only smaller one than another; others have only one, and others none at all. The turban of the officers of the divan is of a peculiar form, and called muzenrez.

The fathes of the Turks’ turban, we have observed, is white linen; that of the Persians is red woollen. These are the distinguishing marks of their different religions; Sophi, king of Persia, who was of the sect of Ali, being the first who appliued that colour, to disinguish himselt from the Turks, who are of the sect of Omar, and whom the Persians esteem heretics.

Turban, or Clavicle, in Conchology, denotes the aggre-gate, or whole set of the whirs of a shell, and forms its lower part. The flat, or helix turban, is one so slightly prominent, as to be nearly on a level. There are also the short turban, the produced turban, and the long turban.

Turban-Top, in Botany. See HELVELLA.

Turban-Shell, Cideris, in Natural History, the name of a genus of the echinodermata, which are of a hemispheric or sphenoidal figure, and have their name from the Latin Cideris, a Persian turban, as in some degree resembling that head-dres.

Of this there are several genera, and subordinate species. This class of the echinodermata is made out by the affinity of the foils, as well as the recent animals; many of the kinds being now unknown on any shores. Klein’s Echinod. p. 17. See ECHINODERMA.

TURBA, in Ancient Geography, a fountain of Palefline, at the foot of mount Giblon, according to William of Tyre.

TURBARY, Turbaria, a right to dig turf in another man’s ground; from turba, an old Latin word for a turf.

TURBARY, Common of, is a liberty which some tenants have by prescription to dig on the lord’s willing. See common.
Turbishing the whole economy; and has accordingly been used in the droppy, palsy, and apoplexy.

It yields a deal of refined matter in a spirituous menstruum, which Quincy observes does not affect the larger passageways much; but is very active in the smaller vessels, and glandulous contortions, which it wonderfully clears of all viscid adhesions.

Some apothecaries, either through ignorance or para

...fulphasjlavus. paflages used or now to losses for...great against doses, all Paracelsus, strong though. Some have...must be sufficiently washed and been saturated with mercury.

We may observe that turbth mineral becomes yellow only by being deprived of the adhering vitriolic acid, and that it remains white till it has been washed with a large quantity of water; and, in general, the more perfectly it is deprived of this, the better yellow colour it acquires. Some chemists have supposed, that a portion of vitriolic acid remains united with the turbth, though not enough to render it soluble in water; M. Beaumé affirms, that when sufficiently washed it contains no acid; but the latter experiments of M. Bayen prove the contrary.

This powder is called mineral turbth, from the resemblance it bears to the vegetable turbth of the Arabians, in strongly purging the most internal recesses of the body; for though it be insipid upon the tongue, yet it is possessed of very considerable virtues. Being boiled with water, it loses more of its salts, and thereby grows milder, and more safe; so it does also by being deglazed twice or thrice, or distilled with spirit of wine.

The powder, prepared in the manner above described, proves, though not corrosive, strongly emetic; operating, in this intention, the most effectually of all the mercurials that can be given with safety. It is used chiefly in virulent gonorrhea, and other venereal diseases accompanied with a great flux of humours to the parts: it is said likewise to have been employed with success in obstetrical constitutions, against leprous disorders, and obdurate glandular obstructions. The dose, as an emetic, is from two grains to fix or eight; though some constitutions, habituated to mercurials, can bear larger quantities. It may be given in smaller doses, as half a grain or a grain, as an alternative, after the same manner as the red calx of mercury; and even when utented as an evacuant, it may perhaps, as Malouin observes, be most adviseable to give only a small quantity at a time, as one grain, and repeat the dose every hour till the vomiting succeeds. Lewis's Mat. Med. and Diet. Chem. Art. Turbth mineral.

Turbth mineral appears to have been the grand secret of Paracelsus, which, in his scare German book of hospital medicines, he praises to extravagantly for the venereal and all chronic diseases. Sydenham also commends it in venereal cafes, given in the quantity of fix or eight grains, in strong habits of body, so as to prove emetic; but when imprudently used, it is apt to bring on a dysentery. Turbth mineral has been used as a ferrunatory, and is said to have made wonderful cures in both the eyes. Mr. Boyle relates a cure of this sort, performed by the famous empiric Adrian Glais-maker on Mr. Vatteville, a Swiss officer of distinction in the French service, and totally blind. This gentleman was ordered to snuff about a grain of turbth up each nostril, which immediately operated in a violent manner, by vomit, foool, sweat, salivation, and the lacrymal glands, for twelve hours together; and also cutted his head to swell greatly; but within three or four days after this single dose had done working, he recovered his sight. Boyle's Works, Abr. vol. i. p. 103.

We read of this preparation being given to the quantity of ten grains, with the same quantity of camphor, and fifteen grains of the pilul. ex dunc. to remove the swelling of the testicles. This medicine, which in the beginning vomited and purged, at last operated chiefly as an alternative. It is said to be successful in obdurate venereal and ferocious disorders. See Medic. Eff. Edinb. vol. iv. art. 4.

Turbth mineral is an excessive bright true yellow, of a great body like vermilion; will flow equally well, and work with oil or water much in the same manner. These qualities (says the author of the Handmaid to the Arts, vol. i. p. 107) render it very valuable for many purposes; as it is much brighter than any other yellow used in oil, except king's yellow, and is free from its nauseous smell, and cooler. Mixed with Prussian blue it yields a much finer green than from the king's yellow without ultramarine. As it is, however, procured, it requires levigation in water before it be used.

TURBO, in the Linnaean System of Zoology, is a genus of the Teefacea order of worms. Its characters are; that its animal is a flug; the shell univalve, spiral, and solid; and the aperture straightened, orbiculated, and entire. Gemelin, in his edition of Linnaeus enumerates one hundred and seventeen species, besides several varieties. See Turbo under the article Conchology.

In Da Cotta's System, the turbo is a genus of snails, with a lengthened clavicle or turban; which have generally a perfect round mouth; the columnella, or inner lip, not much faced outwards, and the body spire very bellied, so that the turban is suddenly, and not insensibly, produced from it. See SHELLS.

The most remarkable species of the turbo, or screw-shell, is that called failure by Rumphius, from its spires running up hollow, or with a space between them. This is a very scarce and valuable shell when large, but is often found small in the Adriatic.

Aldrovand, and many others of the old authors, make no difference between the turbanes and screw-shells, though the distinction of the genera is very obvious; the screw-shells having a long, large, and dentated mouth, which terminates towards the base in a narrower aperture than elsewhere; and the shell itself always runs to a very sharp point at the end; whereas the turbanes terminate in a less sharp point, and have thicker bodies, and always much wider mouths. The screw-shells are indeed very easily confounded with the buccina; and it requires more accuracy to disinguish them, than has fallen to the share of the generality of writers on these subjects an age or two ago. Aldrovand and Rondeletus have confounded these genera, and have brought in a third among them, by the epithet murettum, which, when applied to the buccina, is generally offered to bring into that family a shell of the murets clafs, and which might have been very properly called by that shorter name.

For the sake of distinguishing these, it may be observed, that the screw-shell is of a very long and slender shape, terminating in a very sharp point, with its spires running on imperceptibly, without any great cavity, and the base small and flat, as well as the mouth.
**TURBO** Cochlea, in Natural History, a name by which some authors have called the Persian shell, a species of conchologia globosa, or dolium.

Many have been puzzled with this shell, not knowing in what class to rank it; and Aldrovan has placed it at the end of his work, saying, that it would seem to belong to the turbinated kinds, but that it wants the turbo.

**TURBOT** in Ichthyology, a name given to the fish which, in the systems of Artemi and Linnaeus, is a species of pleuronectes, being the pleuronectes of the former, with the eyes on the left side, and a rough body, and the pleuronectes maximus of the latter, and the *rhombus maximus* after non squamosus of Ray. See Pleuronectes Maximus.

Turbots grow to a large size, some of them weighing from twenty-three to thirty pounds. They are taken chiefly off the north coast of England, and others off the Dutch coast. The large turbots (as well as several other kinds of flat fish) are taken by the hook and line, for they lie in deep water; the method of taking them in weirs, or flaked nets, being very precarious. When the fishermen go out to fish, each person is provided with three lines, which are coiled on a large oblong piece of wicker-work; the hooks being baited, and placed regularly in the centre of the coil. Each line is furnished with fourteen score of hooks, at the distance of six feet two inches from each other. The hooks are fastened to the lines upon needles of twisted horse-hair, twenty-seven inches in length. When fishing, there are always three men in each cable, and consequently nine of these lines are fastened together, and used as one line, extending in length near three miles, and furnished with 2520 hooks. An anchor and a buoy are fixed at the first end of the line, and one more of each at the end of each man's lines; in all four anchors, which are common perforated stones, and four buoys made of leather or cork. This line is laid across the current. The tides of flood and ebb continue an equal time upon our coast, and, when undisturbed by winds, run each way about six hours; they are so rapid that the fishermen can only shoot and haul their lines at the turn of tide, and therefore the lines always remain upon the ground about six hours; during which time the *myxine glutinosa* of Linnaeus will frequently penetrate the fish that are on the hooks, and entirely devour them, leaving only the skin and bones. The same rapidity of tides prevents their using hand-lines; and therefore two of the people commonly wrap themselves in the fail, and sleep while the other keeps a stiff look-out, for fear of being run down by ships, and to observe the weather. For storms often rise so suddenly, that it is with extreme difficulty they can sometimes escape to the shore, leaving their lines behind. Besides the cable, the fishermen have also a five-men boat, which is forty feet long, and fifteen broad, and of twenty-five tons burthen; it is so called, though navigated by fix men and a boy, because one of the men is commonly hired to cook, &c. and does not share in the profits with the other five.

This boat is decked at each end, but open in the middle, and has two large lug-fails.

All our able fishermen go in these boats to the herring-fishery at Yarmouth, in the latter end of September, and return about the middle of November. The boats are then laid up till the beginning of Lent, at which time they go off in them to the edge of the Dogger, and other places, to fish for turbot, cod, ling, flates, &c. They always take two doubles on board, and when they come upon the ground, anchor the boat, throw out the doubles, and fish in the same manner as those who go from the shore in a coble; with this difference only, that here each man is provided with double the quantity of lines, and instead of waiting the return of the tide in the coble, return to their boat and bait their other lines; thus hawling one set, and shooting another every turn of tide. They commonly run into harbour twice a week to deliver their fish.

The best bait for all kinds of fish is fresh herring cut in pieces of a proper size; the five-men boats are always furnished with nets for taking them. Next to herrings are the leffer lamprey. The next baits in esteem are small haddock cut in pieces, sand-worms, and limpets, here called *finders*, and when none of these can be had, they use bullock's liver. The hooks are two inches and a half long in the shank, and near an inch wide between the shank and the point. The line is made of small cordage, and is always tanned before it is used.

Turbots, and all the rays, are extremely delicate in their choice of baits; for if a piece of herring or haddock has been twelve hours out of the sea, and then used as bait, they will not touch it. Pennant's Brit. Zool. vol. iii. p. 254, &c.

**TURBOWKA**, in Geography, a town of Russia, in Poland; 32 miles S.E. of Zyтомiers.

**TURBUNNY**, a town of Napaul; 60 miles S.W. of Catmandu.

**TURQUE**, in Ancient Geography, the name of a people who inhabited the environs of the Palus Mætides, according to Pomponius Mela. See **TURK**.

**TURCHANS**, or **ROOHANS**, in Zoology, a kind of wild hordes in the great defect about Azof. They are higher than the *tarpan*, (which fey,) mofs-grey in colour, with long upright standing ears, their manes and tails thinner and shorter than the common breed, their coats long and thick. They feed by thousands together in one taboo. The Kirghis Rhaifaks shoot them with guns, and eat them.

**TURCICA SELLA.** See **SELLA**.

**TURCICA TERRA, Turkey Earth,** in the Materia Medica, a very fine bole or medicinal earth, dug in great plenty in the neighbourhood of Adrianople, and used by the Turks as a sudorific and astringent, and famous among them in pellential diseases. It is sometimes brought over to us also made up into flatish or bulbous masses, of two or three drachms weight, and fezled with some Turkish characteris. The earth is of a somewhat lax and friable texture, yet considerably heavy, of a greyish-red colour, but always redder on the surface than within; extremely soft, and naturally of a smooth surface. It breaks easily between the fingers, and melts freely in the mouth, with a considerably strong astringent taste. It adheres but slightly to the tongue, raves no effervescence with acids, and burns to a dulky yellow colour. Hill.

Many authors who have written of the materia medica, and of fofils in general, have indiscriminately called the various kinds of Lemmian earth by this name; but the true terra turcica, described by Schroder, Wormius, &c. is a different substance, though not sufficiently characterised by those authors to distinguish it from all the other earths.

**TURCKHEIM**, in Geography, a town of Germany, in the lordship of Mindelheim; 6 miles E. of Mindelheim—Alto, a town of France, in the department of the Upper Rhine, formerly imperial; 3 miles W. of Colmar.

**TURCKHEIM Rhein**, a town of France, in the department of Mont Tonnerre; 4 miles N. of Worms.

**TURCO**, a town of Peru, in the diocese of La Plata; 60 miles E.N.E. of Atacama. S. lat. 20° 30'. W. long. 68° 20'.

**TURCOCORIA**, a town of European Turkey, in Livadia; 14 miles N. of Livadia.

**TURCOIN**.
TURCOIN, a town of France, in the department of the North, and chief place of a canton, in the district of Lille. The unfortunate conflict between the French and the duke of York, who commanded the allies, may be said to have decided the fate of the Netherlands; 6 miles N.N.E. of Lille.

TURCOIS, or TURQUOIS, in Natural History and Mineralogy, a substance found in Persia and other parts of Asia, and formerly claffed with stones. It has a beautiful light-green colour, and is fusceptible of a high polish. The surface is smooth and polished; it has also a smooth shining fracture, and is so hard as to scratch glass lightly; the specific gravity is 3.127. It has for a long time been considered as the tooth of an unknown animal impregnated with copper; but by a series of analytical experiments, La Grange has proved that it does not contain a particle of copper; but is in reality bone coloured by phosphat of iron. The constituent parts are as under:

- Phosphate of lime
- Carbonate of lime
- Phosphate of iron
- Phosphate of magnesia
- Alumine
- Water

Guyton Morveau suspected that the turcois contained silex, but this is supposéd by other chemists to have been accidental. This celebrated chemist made some experiments on silex bones, and found that they assume in the fire the colour of turcois; and when digested in a weak solution of potash, they turn blue, varying from a greenish to deep blue. Mehrs. Fourcroy and Vaquelin have also observed that bones strongly calcined often assume a blueish tinge, which they considered to be caused by a small portion of phosphat of iron.

Turcois is employed in jewellery. See GEMS.

The Greeks and Latins seem to have known it under the name callaitz; and it appears to have had a place in the rational of the high-priest of the Jews.

Some writers mention turcois both oriental and occidental, of the new rock and of the old. The oriental part takes more of the blue tincture than the green; and the occidental, more of the green than the blue. Thofe of the old rock are of a finer blue, and thofe of the new rock are often whitish, and do not keep their colour.

The oriental ones come from Persia, the Indies, and some parts of Turkey; and some even suppoze, that it is hence they derive their modern name turcois. The occidental are found in various parts of Europe, particularly in Germany, Bohemia, Silefia, Spain, and France.

Turcois are found of a round or oval figure; they cut easily, and besides seals, which are frequently engraved on them, some are formed into crucifexes, or other figures, near two inches high; though De Boedt mistakély affirms, that none have been known to exceed the bigness of a walnut; for the specimen exhibited by Mr. Mortimer to the Royal Society was twelve inches long, five inches broad, and in some places near two inches thick.

The turcois is easily counterfeited; and that often is done so perfectly, that it is impossible to discover the deceit, without taking it out of the collet.

In the Memoirs of the Academy of Sciences for the year 1715, we have a very curious account of the formation of the turcois, and the manner of managing its naturally irregular colour, by M. Reaumur. The turcois, he obserues, is one of the safest of precious stones, its hardnes is not coming up to that of a crystal, or a transparent pebble; though some are much harder than others: and still the harder, ceteris paribus, the more valuable, by reason of the vivacity of the polish, which is always proportionable to the hardnes.

Reaumur, a jeweller, and the author of a scarce treatise, called Mercure Indien, estmating the several precious stones, noted a hard turcois, whose blue is neither bright nor deep, on the foot of the most perfect emeralds, that is, nearly on a level with a diamond; but such are scarcely ever met with. Thofe with any defect, he only values at a French crown the carat.

Tavernier affirms, but erroneously, that there are but two mines of turcoises known in all the earth, and these are both in Persia; the one called the old rock, near a town called Necabourg, three days' journey to the north-east of Mached; the other, called the new rock, is five days' journey from it. The stones from the latter, he adds, are but little valued; and the king of Persia hath for many years prohibited the digging in the former for any but himself. M. Reaumur takes the old rock to be now exhausted; in effect, the common division of turcoises into the old rock or oriental, and new rock or occidental, is very arbitrary and precarious. All the blue, and most perfect, wherever they occur, in India and China, are reckoned among the former, and the rest among the latter. Near Simore, in the Lower Languedoc, there are several considerable mines of turcoises; but that fine blue colour, admired in the turcois, is not natural to those of these rocks; the prevailing colour being sometimes white, and sometimes much like that of tripoli of Venice. Other precious stones are dug out of the mine with all their colour, to the force of which nothing can be added, though it may frequently be diminished, as we see fire bring down the too deep colour of the fapphire, and quite take away that of a pale fapphire; these turcoises, on the contrary, are naturally whitish or yellowish, of a colour as ordinary as that of a free-stone; and by opposing them for some time to the action of the fire they assume a blue colour.

It seems paradoxical, and yet M. Reaumur has attempted to prove, that turcoises are originally the bones of animals. In the mines in France, pieces have several times been found in the figure of teeth, bones of the legs, &c. And turcoises which are yet imperfect, or half-formed, are apparently composed of lamine, or leaves, like those of bones, between which some petrifying juice, infaminting itself, binds them clofe together; and full, the fofeter, the more imperfect the fones are, the more dillinguifhable are the different directions of the fibres and lamine, with their interferences, and the great refemmblance they bear to fratured bones, and the lefs to any kind of ftones known.

To give them a blue colour, they dry them awhile in the air, then heat them gradually in a furnace made after a particular manner. If they be heated too hastily, the humidity between the lamine wanting time to evaporate, the whole will separate into scales or flaws. Some of the stones require a greater degree of heat to bring them to their colour than others; and even in large pieces, the several parts ordinarily require several degrees of heat.

On this account a great deal of care is to be taken in the heating of them; for the fire, which gives them their blue by degrees, if they be expoed beyond a certain degree, takes it away again.

M. Reaumur accounts for their taking a blue colour by heat very well: when fresh cut out of the rock, it seems their subsistence is found sprinkled and streaked all over with spots, veins, little circles, &c. of a dark blue colour; thofe he takes to be fource of a deep blueish matter, which the fire rareifying, 3 G
rarefying, spreads and diffuses throughout the whole sub- 
stance of the fone. This matter, again, he concludes to 
have been either originally the juice contained in the bones, 
since mixed and coagulated with the petrifving juice, or 
some other mineral matter insinuated into the pores of 
the fone.

According to M. Reaumur's Mem. Par. 1715, nitrous 
acid will not dissolve that of Perfia, though it will that of 
France, which shews a difference between them.

Dr. Woodward maintains, that the turcois, or callais 
of Pliny, is nothing else but foffile ivory tinged with copper; 
but Mr. Mortimer, who produced a specimen of the turcois 
to the Royal Society, is of opinion, that fole which authors 
call stones of the old rock, and in which the colour is 
permanent, are real mineral fones; the form and fize of 
the faniple which he produced evincing this; for its fhape 
shews that it could not be part of any animal bone, but its 
botryoid form f eens to prove, that it is the production of 
fire, which has once melted this fubftance, and that when it 
cooled, its surface was formed into blisters and bubbles, in 
the fame manner as the lematites botryoides, or blood-
flone, whose surface confirts of knobs, reflenting a bunch 
of grapes. He apprehends the dephts iverco, or ehar 
flaff of Theophratius, to be what Dr. Woodward calls the 
turcois, and fuppofes that it is what De Bood calls the 
new rock. He thinks that, for diftinction fake, all these 
flones of ivory origin should be called pseudo-turcofis, or 
baulfard turcois. By a chemical analysis he concluded, that 
his flone was a rich copper ore; fome of it pounded and dif- 
folved in fpirit of hartthorn gave a deep blue; in aqua 
fortis, a fine green; and an iron wire put into it was in an 
hour's time incrulfed with copper; fome of it, being cal- 
cined without any flux in a crucible, ran to a flag or half-
vitrified fubftance; whereas the fame heat, if it had been 
ivory or bone, would have reduced it to a white ash, like 
bone-afhes, for it was expos'd to a fire that vitrifled the 
tile which covered it. Its hardnefs and confiftence to an 
graver's tool feemed to be the fame as that of common 
white marble; its colour was not improved by heat, and it 
became brittle when red-hot.

Sir Hans Sloane had feveral fpecimens of thefe oriental 
turcoifes, which are all botryoid, and feme to be copper 
ores; and in his museum there are alfo famples of turcoifes 
from Spain and the fouth of France, which are fmall, and 
feme to be pieces of ivory tinged with copper. Phil. Tranf. 
vol. xlv. art. 17.

The great defect of turcoifes in general is, that in time 
they lose their blue colour, and become green; and then 
ceafe to be of any value.

The pale blue of the natural turcois gem, is a very fa- 
vourite colour in the glafs-trade, and is given to glafs in 
the following manner. Firft calcine common fea-falt, and 
beat it into fine powder; then make a pot of the sea-green 
glas, of a fair and full colour; to this, when in fufion, 
throw in at times the powder of falt, till the fubs has loft 
all its tranparence, and is become paler and opaque; then 
add, by very small quantities at a time, more and more falt, 
till the colour is exaftly that of the turcois gem; and when it 
is fo, work it immediately, for the falt isfoon burnt off, 
and the glafs becomes tranparent, and of its green colour. 
If it become tranparent while working, more falt must be 
thrown in, and that will reduce it to the fame opacity again.

Neri's Art of Glafs, p. 57. See Glass.

For making a pate relluming the turcois, fee Paste.

TURCZYNKA, a town of Poland, in Volhynia; 38 
miles N. of Zytomiers.

TURDE, in Ancient Geography, a town of Italy, 
belonging to the Velumbrì, according to Ptolemy.

TURDETANI, or Turdetans, a considerable people 
of Spain, in Betica, a great part of which they occupied. 
The Turdetans were confidered as the moft diftinguifhed 
people of Spain. They studied their language; they were 
in poffeffion of ancient histories, and of laws written in 
verfe; they were regarded as the moft polished people of the 
whole province, on account of the commerce which they 
carried on with foreigners, and particularly with the Phcenicians.

When the Phcenicians fift landed on the coasts of Turde- 
tania, they found filver fo abundant, that all the moveables 
of the inhabitants, not excepting the meaneft and moft tri- 
ivial, were made of this metal. Strabo fays, that when the 
Turdetani became fubject to the Romans, they fuffered the 
manners of their conquerors, and forgot their own language, 
adapting that of the Romans. Their provinces furpafed all 
others in riches and cultivation, in honesty and religious zeal. 
This country supplied great abundance of cheefe, wine, oil, 
wax, faflon, vermilion, &c., particularly fine wool.

TURDULI, a people of Spain, in Betica, towards the S.E. 
According to Strabo, the Turduli and Turdetani 
were the fame people.

TURDUS, Thrush, in the Linnean Syfen of Ornitho- 
logy, the name of a genus of birds, of the order of the 
Faferes. The diftinguifhing characters of this genus are, 
that the tongue is jagged, and has a rim or margin round it; 
the bill is of a conic-pointed figure, the upper mandible 
bent at the apex, and emarginated; the noftils naked, but half 
covered above with a small membrane, and the chops ciliated.

Gmelin enumerates 125 

Species.

VISCIVORUS. With a brown back, neck with white spots, 
and a yellowish bill. This is the millif thrush of Pennant 
and Latham. Found in the woods of Europe.

PILARIS. With black tail-feathers, the outer moft whitifh 
at the apex and interior margin, the head and rump hoary. 
The fieldfare of Ray, Willughby, Pennant, and Latham. 
Of this there are four varieties. Found in the woods 
of Europe, Siberia, and Syria.

AFRICANUS. Blackifh, the breast covered with black 
feathers, with red margins; the bill yellow; and the legs 
cicereus. Found in Africa.

TRIPOLITANUS. Olive-yellow, whitifh beneath; black 
quills; equal blackifh tail and yellow apex. The Tripoli 
thrush of Latham. Found in Barbary.

BARBARICUS. Green; breast spotted white, rump 
and tail at the tip yellow. The green thrush of Shaw's 
Travels, and the Barbary thrush of Latham, fo called from 
itf habitation.

AONALASCHINUS. Brown spotted black; the breast 
yellow spotted black; the wing-coverts, the greater 
quills and tail-feathers black, with a teftaceous margin. 
The Unalafha thrush of Pennant, and Aonvalafhka thrush 
of Latham, fo called from the place of its abode.

ILIASCHUS. With wings ferrifugious beneath, and whitifh 
eye-brows. The red-wing, fwine-pipe, or wind-thrush of 
Ray, Willughby, Pennant, and Latham. An European 
bird, migrating in large flocks.

MINOR. Light-red, beneath white; breast yellowifh, 
varied with black spots. The little thrush of Pennant, Ed- 
wards, and Latham. Found in Jamaica and North America; 
seven inches long, migrating and feeding on berries.

JAMAICENSIS. Above Cicereous; bill, head, and legs 
brown;
brown; quill-feathers and tail black; chin and throat white, fritated with brown; breast cinereous; abdomen white.

The Jamaica thrush of Latham.

**Guanensis.** Above greenish-brown, underneath ochre-coloured, with black longitudinal line. The Guiana thrush of Latham.

**Muscicus.** With quill-feathers at the inner base ferruginous. The Mavis thrush or long-thrush of Ray, Wilugby, Pennant, and Latham. Found in the woods of Europe, imitating in the mornings of spring the song of the nightingale, and continuing it for almost nine months. Of this there are three varieties.

**Olivaceus.** Brownish; beneath yellow. Found at the Cape of Good Hope.

**Indicus.** Olive-coloured; bill and legs blackish; quills brown on the inner side. The Indian thrush of Latham; so called because it is found in India.

**Cinererus.** Ash-coloured, with the two intermediate tail-feathers cinereous; the next on both sides black at the margin, and cinereous at the apex; the rest black. The ash-coloured thrush of Latham. Found in India.

**Migratorius.** Grey; abdomen red; eye-lids white; the external tail-feather white at its interior apex. The American fieldfare of Forrer, and red-breasted thrush of Latham. Found in North America, from Hudson’s Bay as far as the bay of Natka and Carolina.

**Trichas.** Olive-coloured; the body beneath yellow; the ocular band black. The Maryland yellow-throat of Edwards, and the yellow-breasted warbler of Pennant and Latham. Found in summer in the moist low woods of Carolina, Maryland, and Pennsylvania.

**Canorus.** Brown; beneath ferruginous; with a white line on the sides of the head, and a rounded tail. The crying thrush of Latham. Found in Bengal and China.

**Rufus.** Red; beneath spotted whitish, with quill-feathers of the same colour; the tail rounded and red. The ferruginous thrush of Pennant and Latham. Found in America, from Newfoundland to Carolina.

**Polyglottus.** Obscurely ash-coloured; beneath palely ash-coloured, with the greater quill-feathers white on the exterior half. The fingling-bird, mocking-bird or nightingale of Sloane, the mock-bird of Catesby and Kalm, and the mimic thrush of Pennant and Latham. Found in Jamaica, and the moist woods of America, practising in the way which its name imports.

**Orphius.** With brown back; breast and lateral wing-feathers whitish; eye-brows white. The polyglott bird of Willughby, the lesser mocking-bird of Edwards, and the mocking-thrush of Latham. Found in Jamaica, and the warmer parts of America. It has two varieties.

**Sandwichensis.** Above and abdomen brownish; beneath and front cinereous-white. The Sandwich thrush of Latham. Found in the Sandwich islands.

**Pacificus.** Above cinereous; beneath brownish-white; the lori black; the tail black, with a white tip. The Pacific thrush of Latham. Found in the Friendly islands.

**Suratensis.** With the head somewhat crested; the neck, tail, and greater quill-feathers and legs black; the body above amber-coloured; beneath dirty-grey; the wing-coverts and second quills green. The Surat thrush of Latham, named from its habitat.

**Philippines.** Above olive; neck and breast red, spotted with white; abdomen and vent ochre-coloured. The Philippine thrush of Latham; so called from the islands which it inhabits.

**Shanru.** With chin, throat, and the ocular area black, with a large white streak at the ears; the rest of the head, neck, breast, and abdomen grey; the back and wings greenish-brown. The black-faced thrush of Latham. Found in the woods of China.

**Nov. Hollandiz.** Bluish lead-coloured; the anterior part of the head, the bill, chin, throat, and legs black; the quill and wing-feathers black, with lead-coloured margin; the intermediate white at the apex. The New-Holland thrush of Latham.

**Plumbeus.** Black, with yellow axillar, and cuneated tail. The red-legged thrush of Pennant and Latham. Found in North and South America, and in the Bahama islands.

**Crassirostris.** Above from red, and beneath from black to brown, with the quill-feathers acuminate; the two intermediate obscure. The thick-billed thrush of Latham. Found in New Zealand.

**Ultrics.** From red to brown; quill-feathers black at the margin, and roundish tail black. The Bay thrush of Latham. Found in Ulieta.

**Pallidus.** From yellowish to ash-coloured; beneath whitish; tail-feathers from cinereous to brown; the side ones white at the apex. Pale thrush of Latham. Found in Siberia, beyond the lake Baikal.

**Sibericus.** Black, with yellow mouth; eye-brows and space under the wings white. White-browed thrush of Latham. Rare in the alpine and more northerly woods of Siberia.

**Ruficolliis.** Above brown, below snow; neck and equal tail-feathers red; the two intermediate cinereous. Red-necked thrush of Latham.

**Obscurus.** Brown; with eye-brows, chin and vent blue. Dark thrush of Latham. Found beyond the lake Baikal, in the woods of Siberia.

**Pheniculus.** Above olive, with white eye-brows; ocular band black; tail-feathers and two intermediate quills palaceous; sides with throat and breast red. The red-tailed thrush of Latham. Found at the Cape of Good Hope.

**Rupicolaus.** Above olivaceous; beneath purplish and white; tail-feathers and quills black; sides for the most part red. The rufous-tailed thrush of Latham. At the Cape of Good Hope.

**Malabaricus.** Ash-grey; beneath red-brown; bill and tail-feathers black; legs yellow. The Malabar thrush of Latham. Found in Malabar.

**Pagodarum.** Black; back and rump grey; vent white; head crested. The pagoda thrush of Latham. Found in Malabar and Coromandel.

**Cayennensis.** Cinereous; beneath whitish; vent white; greater wing-feathers and tail-feathers black; throat, bill, and legs black. The Cayenne thrush of Latham.

**Variegatus.** Above brown; beneath whitish; feathers whitish and black intermixed. Variegated thrush of Latham. Found in Surinam.

**Striatus.** Varied with yellow and grey; a longitudinal streak of the back yellow. Yellow-backed thrush of Latham. Found in Surinam.

**fuscus.** Olivaceous-brown; breast and abdomen whitish, spotted with brown; greater quills and legs black. Brown thrush of Latham and Pennant. In New York.

**Mustelinus.** Beneath white, spotted with black; cheeks brown, spotted with white; rump and greater quills acuminate, and tail-feathers brown. The tawny thrush of Latham. In New York.

**Camtschatkenis.** Brownish; beneath from brownish to white; eye-brows pale; chin and throat carophyllous-coloured. Kamtschatka thrush of Pennant and Latham. Found in Kamtschatka.
TURDUS.

NAEVUS. With head and pectoral band black; streak from the eyes to the hind part of the head ferruginous; body above cinereous; beneath ferruginous. The varied thrush of Pennant, and spotted thrush of Latham.

Hudsonicus. From bluish to cinereous; bill and legs black; feathers of the crown, nape, wing-covers and primary quills pale at the margin, red. The Hudsonian thrush of Pennant. Found in Hudson's Bay.

Novemrachnus. With head, neck, and breast varied from black, and dilutely ferruginous; feathers of the back ferruginous at the margin; with double band above and below the eye, wings, and roundish tail shining-green, and legs black. The New York thrush of Pennant. Found in New America.

Curucus. Shining-black; bill sub-filibrated, and tail emaciated. Found in Chili.

Nitens. Green; spot on the wing-covers violet. Shining thrush of Latham. Of this there is a variety, the green merula; beneath violet; throat and rump blueish. Found in Angola, and at the Cape of Good Hope.

Æneas. Shining-green; beneath brassy; head blackish to shining-gold; rump and intermediate tail-feathers purplish; tail wedge-formed. Glossy thrush of Latham. Found in Senegal.

Auratus. Violet; back and wings green-gold; band of the wings at the internal margin and tail, with the superior wing-covers, blue. The gilded thrush of Latham. Found at Whidah, in Africa.

Leucogaster. Violet; with white belly; blackish quills; bill and legs cinereous. The Whidah thrush of Latham.

Roseus. Subincarnate; head, wings and tail black; occiput crested. Merula roeae of Aldrovand, Ray, and Brifson; rofe or carnation-coloured ouzel of Pennant, Wilughby, and Edwards; the rofe-coloured thrush of Latham. Found in various parts of Europe, Siberia, and Syria, migrating in flocks, and feeding chiefly on locusts.

Leucurus. Black; rump and tail white; tail-feathers black at the apex. White-tailed thrush of Latham. Found about Gibraltar.

Caper. Blackish; somewhat crested; rump and belly white; vent red. Cape thrush of Latham. Of this there is a variety, the merula above brownish to cinereous; filiated brownish; beneath hoary. Found in China, and at the Cape of Good Hope.

Macrorurus. From purplish to shining-black; beneath from ferruginous to yellow; rump and three tail-feathers on both sides exteriorly white. The long-tailed thrush of Latham. Of this there is a variety with the two intermediate tail-feathers black; the rump half white. Found in Pulo Condore and Malabar.

Amboinensis. Spadiceous; beneath yellow; secondary quill-feathers yellowish from the base to the middle; tail cuneiform; beneath yellow. The Amboine thrush of Latham.

Boronicus. From cinereous to olive; black crown; abdomen and vent from olive to yellow; tail brown, with two obiolute bands towards the apex. The Bourbon thrush of Latham. Found in the island of Bourbon.

Ochroccephalus. With the larger quill-feathers, tail, and legs green; vertex and checks yellowish; collars black; abdomen and breast cinereous; the latter varied with fagi tinted spots. The yellow-crowned thrush of Latham. Found in Ceylon and Java.

Orientalis. Black; beneath white; rump cinereous; ocular band black; three tail-feathers on both sides externally white. Ash-rumped thrush of Latham. In India.

Nigerrimus. Wholly black; feathers yellow at the margin; cheeks and throat holofuscous. The black-cheeked thrush of Latham. Found in Madagascar.

Hispianolensis. Olive-coloured; beneath varied from olive to grey; brown tail-feathers, whith at the interior margin, olive at the exterior; with the intermediate altogether olive. The Hispaniola thrush of Latham.

Albifrons. From black to lead-coloured; beneath yellowish; with the spot on the front white; and brown legs. The white-fronted thrush of Latham. There is a variety black; beneath white, rump beneath cinereous. Found in New Zealand.

Capensis. Brown; abdomen yellowish; vent yellow. A variety has the head and tail black. Found at the Cape of Good Hope.

Atropicillus. Brown; head black; abdomen and rump red; spot on the wing white. Found at the Cape of Good Hope.

Mauritianus. From greenish to deep blue; the feathers of the head and neck narrow and long; bill cinereous; and legs lead-coloured. The Mauritius thrush of Latham.

Mindanaensis. Steel-coloured; beneath white; the longitudinal band of the wings white; tail subfuscated. The Mindanao thrush of Latham.

Madagascarensis. Brown; abdomen and vent white; tail subfuscated; two intermediate tail-feathers wholly, and the rest at the exterior margin green-gold; the exterior margin of the outmost on both sides white. The Madagascar thrush of Latham.

Senegalensis. From grey to brown; abdomen whitish; bill, tail-feathers, tail and legs brown. The Senegal thrush of Latham.

Longirostris. From olivaceous to pale-brown; beneath pale sulphureous; rump and eye-brows yellowish; tail round and yellow; intermediate tail-feathers brown. The long-billed thrush of Latham. Found in the islands of Eimeo and York.

Griseus. Grey; crown and neck whitish, breast, abdomen and vent from very pale red to grey. The grey thrush of Latham. Found in Coronadel.

Palmarum. Green-olivaceous; beneath sub-cinereous; black head, with three white spots on each side. The palm thrush of Latham. There is a variety, viz. merula palmarum atricapilla; found among the palms of Cayenne.

Monachus. Above yellow, with brown; beneath yellowish; black head; terminating with black on the breast acutely. The nun thrush of Latham. Found in the woods of Abyssinia.

Æthiopicus. Black; beneath white; with a transverse white band on the wings; tail round, tail-feathers quadrated at the apex. The Ethiopian thrush of Latham. Found in the thick woods of Abyssinia.

Abyssinicus. Brown; beneath yellow; brownish throat, and black legs. The Abyssinian thrush of Latham.

Cochinchinensis. Green; with blue spots on both sides at the base of the bill; face, chin, and throat black; the latter encompassed with a yellow arc. Found in Cochinchina.

Cinammomeus. Beneath more diluted cinnamon; throat, legs, temples, cheeks, chin, covers of the wings, and breast black; with white nebulous wreath. The black-breasted thrush of Latham. Found in Cayenne.

Rufifrons. Brown; beneath, and the front and temples red; vent white; tail and legs cinereous. The rufous thrush of Latham. Found in Cayenne.

Cantans. From red to brown, varied with transverse black or blackish streaks; beneath whitish; chin, cheeks, and
and throat from red to orange; with black area, spotted with white on both sides of the neck. **Mutilated thrush of Latham.** In the recesses of the forests of Cayenne.

**Coraya.** Red-brown; beneath more dilute; vertex and sides of the head and neck black; tail grey, varied with blackish lines. The barred-tailed thrush of Latham.

**Fuscipes.** Cinereous; beneath red; vertex black; legs and tail-feathers brown; tail sub-cuneated. The buff-winged thrush of Latham; suffixed to be found in Cayenne.

**Alapi.** From olive to brown; throat and breast black; abdomen cinereous; tail wedge-formed, blackish. The white-backed thrush of Latham. In Guiana.

**Chirriatus.** Cinereous, with wedge-formed tail, white at the margin and apex; crested crown; throat varied with white and black; breast black. The black-crested thrush of Latham. Found in Cayenne.

**Tintinnabulatus.** Vertex and temples white, spotted with black; eye-brows black; chin white; incarnated breast spotted with black; back, wings and tail brown; rump, abdomen and vent from red to orange. The chiming thrush of Latham. Found in Cayenne and Guiana.

**Bambia.** Spotted; above from red to brown; beneath cinereous; wings black; with a white transverse band. The black-winged thrush of Latham. Found in Cayenne.

**Auritus.** Varied from red and olive-coloured; beneath white; vertex and wrass from red to brown; chin and throat black; feathers near the eyes, and at the sides of the neck, thining-white; elongated and more wide. The white-eared thrush of Latham. Found in Cayenne.

**Colma.** From red to brown; beneath cinereous; chin and throat white, spotted with black; breast from grey to brown. The rufous-naped thrush of Latham. It has a variety from brown to black; the occiput and neck red. Found in Cayenne.

**Tinniens.** Above brown; beneath white; breast spotted with black; equal tail. The alarum thrush of Latham. Found in Cayenne.

**Lineatus.** From olive to brown; chin, throat and breast white; the latter spotted with brown; the sides of the neck marked with white lines. The speckled thrush of Latham. Found in Cayenne.

**Formicivorus.** Above from red to brown; beneath cinereous; chin, throat, and breast black; band varied with white and black. The ant thrush of Latham. Found as the former.

**Cyannus.** Spadiceous; beneath varied with blue and yellow transverse alternate streaks; vertex at the nape to the quill-feathers and ocular band black; another orange; pec-toral band and wedge-formed tail blue. The blue-tailed thrush of Latham. In Guiana.

**Rex.** From red to brown; beneath more dilute; occiput head-coloured; front varied from white to brown. The king thrush of Latham. Found in South America, particularly Guiana and Brafil.

**Sinensis.** Reddish; head brown frigated; white eye-brows; tail-feathers marked with obscure brown streaks, and legs yellow. The Chinese thrush of Latham. Found in China.

**Trogatus.** Above spadiceous; with eye-brows, collars, chin and vent white; cheeks and bow of the throat white; tail rounded; black towards the apex; apex white. The crested thrush of Latham. Found in China.

**Metallus.** Above spadiceous; with eye-brows, collars, chin and vent white; cheeks and bow of the throat white; tail rounded; black towards the apex; apex white. The crested thrush of Latham. Found in China.

**Melanopus.** Grey; back and wings from green to brown; orbit, chin, and throat black; spot on the ear white. The black-faced thrush of Latham. In the woods of China.

**Violaceus.** From violet to blue; feathers of the head, neck, breast, and covers of the wings steel-faciated at the apex; bill and legs black. Found in China.

**Leucocephalus.** Grey; black quill-feathers; the lesser with the covers of the wings and tail green-brally and thining-violet. The white-headed thrush of Latham. In China.

**Nigricollis.** Brown; head, chin and nape white; ocular band and breast yellowish; neck, back and tail-feathers black; tail wedge-formed, head-coloured. The black-necked thrush of Latham. Found in China.

**Bubil.** Of the colour of terra umbra; longitudinal band near the eyes black. The chanting thrush of Latham. Found in the southern part of China.

**Perspicillatus.** With head and neck cinereous; front and breast under the eyes on both sides black; body above from greenish to brown; beneath ochroleucus. The spe-culate thrush of Latham. In China.

**Flavus.** Yellow; white orbits; band from upper mandible produced near the eye black; bill and legs red. The yellow thrush of Latham. In China.

**Viridis.** Green; with eye-brows, spot below the eye, abdomen and vent white; throat grey, spotted with white; breast reddish. The green thrush of Latham. In China.

**Ater.** From grey to brown; beneath from greenish to yellow, spotted with black; bill, legs, front, face, chin, and throat black; the latter with a red margin. The black-throated thrush of Latham. In the island of St. Domingo.

**Dominicus.** Brownish; beneath white; with the principal tail-feathers white at the base; the three outer tail-feathers white. The St. Domingo thrush of Latham. Found in St. Domingo and Jamaica.

**Braelliensis.** Black; beneath from ferruginous to yellowish; ramp ferruginous; tail sub-cuneated; outermost tail-feathers wholly, the rest at the apex, white. The yellow-bellied thrush of Latham. Found in Brazil.

**Merula.** Black; with bill and eye-lids yellow. The blackbird of Pennant, Ray, Willyughby, and Latham. Of this there are the varieties of *merula leucocephala* of Briffon, *merula varia* of the fame, or pied blackbird of Albini, and *merula alba* of Griffon. Found in the woods of the temperate parts of Europe.

**Aurantius.** From blackish to brown; throat and abdomen whitish; bill and legs orange-coloured. The thrush of Sloane and Ray; the white-chinned thrush of Latham. The varieties are, *merula gula fusca, merula nigra, and merula americana*. Found in the woody mountains of Jamaica, in New Caledonia, in Surinam, and the warmer parts of America.

**Labradorus.** Shining-black; with a blue and green tint; bill and legs black. The Labrador thrush of Pennant and Latham.

**Torratus.** Blackish, with a white wreath, and bill yellowish. The ring-nosed or amulet of Pennant, Ray, Willyughby, Albinius, and Latham. The varieties are, *merula torquata alba, merula torquata albo-maculata, merula albo-maculata, non torquata*. Found in Europe, Asia, and Africa.

**Saxatilis.** Brown; beneath dorally orange, undulated with brown and white; ramp ferruginous; chin white; throat and intermediate tail-feathers brown, the latter in the margin side ones wholly orange. The greater redstart of Willyughby, and rock thrush of Latham. Found in Italy and Spain.

**Erithaca.** With whitish orbits; olivaceous vertex; the upper feathers of the occiput brown, near the whitish apex black-blended, and the lower ones from red to white; brown at the margin; and cinereous rump. The hermit thrush of Latham. Found in the Philippine Isles.
MANILLENSIS. From cinerea to blue; blue rump; tail-feathers and tail red at the margin, blackish; throat and breast spotted with yellow; abdomen orange-coloured, undulated with blue and white. The penive thrush of Latham. Found in the Philippines.

SOLITARIUS. Brown; spotted for the most part with whitish; and blackish tail. The solitary sparrow of Ray and Willughby, and solitary thrush of Latham. Found in France, Italy, and the islands of the Mediterranean and Archipelago.

Cyanus. With feathers cinerea-blue at the margin; mouth and eye-lids yellow. The Indian mockbird of Ray, the solitary sparrow of Edwards, and blue thrush of Latham. Found in Canda, the Archipelago islands, and the rocks of Italy.

ARUNDINACEUS. Brown-ferruginous; beneath whitish-tefaccous; with tail-feathers banded and reddish at the apex. The junco of Gofner, Aldrovand, Ray, and Willughby. The varieties are T. arundinaceus, with red rump and tail; t. arund., above varied with black darts; and least T. arund., above from yellowish to green; with covers of the wings ferruginous. Found among the reeds of Europe.

Morio. Shining-black, with the greater tail-feathers red, and apex black. The African thrush of Latham. Found at the Cape of Good Hope.

Bicolor. Brown tinted with green; abdomen and vent white. The white-rumped thrush of Latham. Found as the former.

ERYTHROTERUS. Black, with red wings; wing-covers and lower quill-feathers of the tail, the intermediate excepted, white at the apex; tail wedge-formed. The rufous-winged thrush of Latham. Found near the Senegal river.

CHRYSOGASTER. Green tinted with orange; beneath orange; bill and legs brown. The orange-bellied thrush of Latham. A variety is from blue to green; beneath orange. Found near the river Senegal, and at the Cape of Good Hope.

Orovang. Cinerea; vertex greenish-black; rest of the head, neck, breast, and body above varying to olive-coloured; the abdomen and crest yellowish. The cinerea thrush of Latham. Found in Madagascar.

Surinam. Shining-black; vertex, rump, and lateral spot on the breast yellow. The Surinam thrush of Latham.

Columbinus. Green, reflecting different sorts of colours; the rump and vent sometimes white. The pigeon thrush of Latham. Found in the Philippine isles.

Dominicanus. Above brown; here and there tinted with violet and feathere; beneath from brownish to white; tail-stip-coloured at the base, greenish towards the apex. The Dominican thrush of Latham. Found in the Philippine isles.

Cantor. From greenish to black, shining-blue and violet; with tail-feathers and tail black. The fonger thrush of Latham. Found as the former.

Malabaricus. Shining-green; yellow front; throat, bill and legs black; covers of the wings and streak on the lower mandible blue. The yellow-fronted thrush of Latham. Found in Malabar.

Seleucia. With bill and legs yellowish; abdomen and back incarnate; tail, wings, and thighs brown. Found in Smyrna.

Zeylonus. Green; beneath yellow; ocular line on both sides extended as far as the black breast. The Ceylon thrush of Latham. Found at Ceylon and the Cape of Good Hope.

Turdus Aquaticus of Brisson. See Tringa Macularia.

Turdus Chiappa, the name of a bird of the West Indies, called also puffer fisher.

Turdus, in Ichthyology, the name of a genus of fishes, according to Mr. Ray, of the clafs of those which have only one back-fin, the anterior rays of which are prickly; the hinder ones soft and smooth.

Of these fishes there are several species, which may properly be divided into two orders; the first, of those which are smaller and broad; the second, of those which are larger and oblong.

Of the first order are the tinea marina, or wrasse (see Labrus Tinea) ; the merula, or turdus niger (see Labrus Merula); the leprous, and pira pira (see and the turdus viridis, or verdone. Ray's Ichthyogr. p. 332.

Of the second order are the pavo, or peacock-fish (see Calotodon Pavo); and the turdus viridis major, and turdus fusus maculosus.

The turdus viridis major, or great green wrasse, is of a fine green on its back and sides, even to the side-lines; and the lower part of the sides and belly are of a pale whitish yellow, variegated with greyish and pale blue spots; its body is long, and not much unlike that of the pike in figure; its back-fin is long, and has thirty-two ribs, the anterior nineteen of which are rigid and prickly, the hinder twelve soft, flexible, and ramose; the scales are large, the eyes small, and the teeth very large and strong.

The turdus fusus maculosus, or brown spotted wrasse, scarcely at all differs from the others, except in colour. It is of a dusky hue on the back and sides, variegated with blue spots; and on the belly blue, with lines and spots of red. All the fins, except those of the gills, are of a red colour, spotted with blue; the tail also is of this colour, and the gill-fins are yellow. Ray's Ichthyogr. p. 332.

Turdus Oculo Radiato of Catesby. See Sparus Radius.

Turdus Primoris Branfibia Caren. See Labrus Grifias.

Turdus Flavus. See Labrus Rafus.

TURECUATO, in Geography, a town of Mexico, in the province of Mechoacan; 60 miles W. of Mechoacan.

TUREE, a town of Bengal; 40 miles S.S.E. of Curuckedesh. N. lat. 24° 50'. E. long. 86° 56'.

TURENBERG, a town of Prufia, in Samland; 16 miles W.N.W. of Königberg.

TURENNE, Henry de la Tour, Viscount of, in Biography, a famous general, was the son of Henry de la Tour d'Anvergne, duke of Bouillon, by Elizabeth, daughter of William I. prince of Orange, and born at Sedan in 1611. Deigned from his childhood to the military profession, his education and habits were conducted and formed with this view. Having acquired the necessary qualifications, he was placed, in 1634, at the head of a French regiment, in which poft he acquitted himself with honour; and having pursued a career of distingushed services, cardinal Richelieu, in 1638, offered him one of his nieces in marriage; but his attachment to the reformed religion led him to decline the proposal. After he had served 17 years in Italy and elsewhere with singular reputation, he obtained, in 1644, the flaff of marshal of France, and was entrusted with the command of the army in Germany, the wants of which he supplied out of his own purse. When the war of the Fronde broke out in 1649, he withdrew to Holland, but afterwards returned and engaged with the party opposed to the court. In this connection he was defeated near Rhetel in 1650; and when asked how he had lost this battle, he replied, "By my own fault; but when a man commits no faults in war, it is because he has not been long engaged in it." In 1651 his difference with the French
French court was accommodated, and he was appointed general of the royal army. In 1653 he married the daughter of the marshal duke de la Force, a Protestant, by whom he had no issue. After several campaigns of alternate successes and defeat between him and d'Enghein, now prince of Condé, in the service of Spain, Turenne in 1657, having gained the battle of Dunes, captured Dunkirk from the Spaniards, and the greatest part of Flanders; so that Mazarin was enabled to make the peace of the Pyrenees. Upon a renewal of the war with Spain in 1667, Lewis XIV. made choice of Turenne, now marshal-general of the French armies, as his tutor in war; and the refult of the first campaign was the conquest of the greatest part of Flanders, and afterwards of Franche Comté. In the following year, Turenne, from motives not satisfactorily ascertained, but not reddening much to his honour, abjured Calvinism, and was reconciled to the church of Rome. In the year 1672, it was determined by Lewis to conquer Holland, and the command of the army was affigned to Turenne; to whose arms refilience was in the course of the campaign ineffectual. The elector of Brandenburgh, proposing to relieve the Dutch, was pursu'd to the gates of Berlin, and obliged to sue for peace. When at this time it was propofed to the marshal to gain 400,000 lives without the knowledge of the court, he thanked the general officer who made the propofal, and told him, that as he had often declined such advantages, he did not intend to alter his conduct at his age. On another occasion, a confiderable city offered him 100,000 crowns for not pafling through its territory; and his reply to the deputies was, "As your city is not in my propofed line of march, I cannot in confidence take your money." We fhould exceed our limits, if we detailed his various succelful movements during the following campaign. The foldiers reprofed confidence in their commander, and to this confidence he owed the profoperous issue of various expeditions. The glory of his conquests, however, was tarnifh'd by his cruel defcillation of the Palatinate, which Voltaire has juftly reprofected; observing at the clofe of his account, that "he rather chose to be called the father of the foldiers that were entruff'd to him, than of the people, who, according to the laws of war, are always made the facrifice. The imperial court, determined to make every effiffle effort to check the progres of Turenne, called for Monteculvi, its beef general, to oppose him. As these two masters of war were preparing for an engagement, Turenne, whilf he was reconnoifiring a fit place to fix a battery, on July 27, 1675, was struck by a cannon ball, which killed him on the spot, in the 64th year of his age; and with him terminated the good fortune of the French in that campaign. His remains were interred with the highest funeral honours at St. Denis. The greatnefs of Turenne's soul was difguifed by a rude and vulgar appearance. His temper was cool, and his manners modest and unafmiffing. He was not always fuccellful in war, and committed faults, which he had the magnanimity to acknowledge; but, as Voltaire fays, (Age of Lewis XIV.) "he always repaired them, and doing much with small means, he pafl'd for the ablest general in Europe, at a time when the art of war was more fludied than ever before. Though he was reproach'd for his defcifion in the war of the Frondë; though at the age of fifty six, love cauf'd him to reveal a fatfeheart; though he exercif'd cruelties in the Palatinate, which he deemed unneceffary; he preferred the reputation of a man of worth, wife and moderate, because his virtues and great talents, which were his own, covered weaknefs and failures which were common to him with fo many other men."

Ramfay, in his "Life of Turenne," mentions the following anecdote, as an infiuance of his ftrict performance of a promife. Being attacked one night by robbers near Paris, and riflped of his money, watch, and rings, he engaged to give them 100 louis d'ors, if they would return him a ring, of no great worth, but which he highly valued. The highwaymen complied; and one of them had the boldnefs to go to his houfe the fucceeding day, and in the middl of a large company to demand, in a whisper, the performance of his promife. The viccount gave orders for the money to be paid, and fuffered the villain to effcape, before he related the adventure.

Turenne, in Geography, a town of France, in the department of the Correze; before the revolution, the capital of a vifcounty; 9 miles S. of Brive.

Turevskoi, a town of Ruffia, in the province of Ufurg, on the Vim; 60 miles N.E. of Yarenk.

Turf, in Agriculture, a term often used to signify the green fward or surface of grafs-land. It is of great use and importance to the farmer to have the turf of fuch land clofe, firm, and well fet, as where this is not the cafe, it foam declines, grows thin, and becomes of little value either for the purpofe of moving or paffuring. It has been noticed, in the "Georgical Effays" of Dr. Hunter, in speaking of the improvement of the turf of poor pallure land, that, on fuch, it constantly gets worse a few years after having been laid down for that purpofe; the cafe of which is plainly this. There are a few fpyr grafles, natural to moft poor lands, which are denominated natural grafles; while thofe from the feeds of clover, and others of fimilar kinds, which are introduced, are in general termed artificial. The roots of these latter are not very durable, efpecially on poor land; and as the cattle as well as other forts of live-flock are greedy of fuch fown grafles, they constantly crop them, and prevent their going into feed, by which the land is deprived of frefh supplies of young plants; whereas the former fort, or the natural grafles, being, in general, much inferior to the other in quality, are refufed by fuch flock, and the land, confefiently, soon becomes plentifully stocked and provided with them.

It is fuggreffed too, that the general method of praftice for improving land, when the turf gets thin and bad, is to bring it under a course of tillage. But when that is not proper or convenient, or when the occupier of fuch land is not inclined to introduce that mode, it may be greatly improved by having fresh feeds of the grafs fot fown upon it; the beef fefon for which is in the beginning of the firft fpring month. The ground fhould firft be well wrought over with a heavy harrow of the plough kind, which will brin'h up and rafle the foil, and prepare it well for the ftriking of the feeds in it. Compofi earth fhould then be used as a dressing, and the feeds fown thereon: after which the ground may be lightly brufhed over again, and well roled. When the fefon proves moist and kind, the feeds will be found to thrive to admiration, and to wonderflully improve both the turf and verdure. And where the turf of land has been greatly cut up by carriages, or much trod up by cattle, it is alfo capable of being improved in this way, without the dressing of compofi earth. Even in paddocks where the turf of the land has been cut up to an extreme degree by rude and wanton horses, a new and verdant turf has been feen to arife, even to augmentation, in a few weeks after fowing the feeds. It is, however, neceffary that cattle should be prevented from coming upon the land until the turf get well fet, and in a firm flate.

The turf, in all forts of land, may be greatly benefitted by
TURF.

by the proper use of manure upon it, and at the same time properly feeding it down with suitable kinds of live-flock. See Grass, Grass-Land, and Grazing.

Turf is likewise a term applied to a blackish fibrous vegetable earthy sub stance, which is used in many parts of the country as fuel. It varies considerably in its nature and composition in different places, being, in some cases, hard and of a dark or black colour, while in others it is soft and very spongy, and of a brownish colour. It is cut and formed into turves for the purpose of fuel, by means of a particular form of instrument, employed in a certain manner. See Turfing Spade.

It is a sub stance which is not only very useful in this way, but for burning calcareous liones into lime, and many other purposes in agriculture.

Turf or peat-earth is capable of extensive use as a manure, but it mostly requires some preparation to properly fit it for this fort of application; as it is found that it is a sub stance which is held together partly by the intertexture of its fibres, and partly by its natural viscidity; and that when it is allowed to dry readily in that flate, it becomes almost incorruptible; and that it does not yield food to growing vegetables, unless its natural conformation be destroyed, and its parts separated by the intervention of other sub stances. This strongly flues that its structure or texture should be somehow broken down and reduced, and the water which it originally contains be forcibly discharged from it, as soon as possible after it is taken from its native bed, in order to prepare it for manure. There are different methods of effecting this. It has been suggested, that as this fort of fibrous matter will not ferment unless some sub stances are mixed with it, which act the same part as the mucilage, sugar, and extractive or albuminous matters, with which it is usually associated in herbaceous and succulent vegetables; a mixture of common yard-dung has been lately properly recommended for the purpose of bringing turf or peat-earth into fermentation; any putrefiable or fermentable sub stance will, however, answer the end; and the more a sub stance heats, and the more readily it ferments, the better it will be fitted for the purpose. In forming this mixture, it is flated, that one part of dung is sufficient to bring three or four parts of the turf or peat into a flate in which it is fitted to be laid upon land; but that, of course, the quantity must vary with the nature of the turf and the dung. In circumstances where some living vegetable mixtures are mixed with the turf or peat, the fermentation will be more readily accomplished.

Turf or peat of this fort, after being reduced in its parts, may also be prepared for this use by being soaked in the urine of cattle, in putrid water, and other such liquids; likewise by the action of lime, and by being ridged up and mixed in the manner below.

This material, both in mixtures with dung and lime, has been used with great success and advantage in Cheshire. The method of preparing it there, in the practice of fome, is, before the winter sets in, to trench and throw it up into narrow ridges, that it may be dried and reduced into a powdery flate by the action of the atmosphere. After some time it is turned over and laid flat, being then usually found much lighter than when first dug up. It is now covered over with dung, in the proportion of a fourth or fifth part of the weight, and left so for about three weeks, when it is turned over, mixed perfectly with the dung, and thrown into heaps. A fermentation commonly takes place, that varies in its duration in proportion to the moif ture in the turf. When it has subsided, the mixture is turned over again, as before, and the turf or peat at the same time broken very small, that it may mix the more intimately with the dung. This often produces another fermentation, more powerful than the flrst. The mixture is mostly ready for use in the beginning of the spring. If lime be used, the quantity is very much less than that of the dung, but the proceeds otherwise much the same.

If, for this purpose, the turf or peat were thrown up in long narrow ridges, and a little quick-line dusted between the different layers, it would, it is suppod by fome, expedite its separation, and disfufe it sooner to incorporate with putrid matters.

This sub stance has likewise been used with great benefit in both of these mixtures, as well as in its simple reduced state in different instances, in Lancashire, by Mr. Paterfon and others. See a paper in the third volume of the Transactions of the Highland Society of Scotland, and lord Meadowbank's Directions.

Turf, in Gardening, the green surface or fward cut from pastures, &c. for the purpose of laying down grafs-grounds; as lawns, plats, bowling-greens, banks of pieces of water in pleasure-greens, &c. It is flayed off with the turfing-iron, in regular lengths of two or three feet, and a foot wide; and being properly laid down clofe and regular in the places intended, it immediately forms an even grafs fward, which quickly strikes root in the ground, in proper growth and verdure. This fort of work may be performed any time in autumn, winter, and spring, in open weather, or occasionally in fummer, in a moif fceon; but the autumn is the best fceon. The belt turf is mostly procured from fine clofe-fed pastures, commons, or downs, &c. where the fward is clofe and even; or that of any grafs-field of similar clofe, firm fward, where the grafs is not rank and coarfe, nor abounding in weeds, or much over-run with the common wild daisy, dandelion, or other similar plants.

In the operation of cutting the turf, a line should be drawn tight lengthways of the grafs-ground, and then the cutting-racer be drawn onto the surface of the fward, clofe to the line, putting it along fo as to cut or fcore the fward in a ftraight cut the length of the line, about an inch and half deep; and having thus raced out one length, the line should be moved a foot width further to race out another length as before, proceeding in the fame manner to a third, and fo on to as many lengths of the line, in foot widths, as may be necessary; then, by the fame means, the fward is to be raced cross-ways in yard dillances, and thus the proper widths and lengths are formed. After the fward has been thus raced out, it should be fayed, or cut up with the turfing-iron, beginning at one fide, cutting evenly longways the whole length of each raced line, about an inch or inch and half thick; a perfon following immediately after to roll them up separately in yard lengths, grafs-fide inwards, as clofe and tight as poifible; having thus cut up one range, proceed with another in the fame manner, and fo continue with the whole. As the turfs are rolled up, they should be piled clofe and regular together, ready for carrying away. When cut by the hundred, as is ofte the cafe where large quantities are required, they are commonly piled up in tens; four below, three next, then two, and one at top, for the more ready reckoning of the number wanted.

In performing this fort of work, it is conftantly neceffary to keep a steady even hand, in order that the turf may be cut all of an even regular thickenes without any fort of lumps or lumps, which renders it fels difficult and troublesome to lay down, as fuch lumps caufe many inequalities that can-
TURF not be easily made level, but require so much heating as often to greatly injure and destroy the turf, as well as to be productive of a great waste of time and labour, thereby causing a great deal of unnecessary expense. Besides, such work under these circumstances can never be done so well as where the contrary is the case.

Turf-After, in Agriculture, those formed from any sort of turfy or peaty matters. Turf-ashes have been used as a manure on poor thin soils, in some districts, with great effect and advantage, and for potatoe crops, but they are probably, in general, the best when employed as top-dressings for grasses and certain kinds of crops. See Top-Dressing.

The ashes formed from turf or peat in Berkshire have lately increased greatly in value, in consequence of their general application as a top-dressing to clovers and other sorts of artificial grasses, as well as to tares, turnips, and occasionally wheat in the young state of its growth. The usual time of applying them is the very early spring. They are there commonly taken in carts, and thrown by the hand over the ground, either before or after the feed for the crop is sown. But when used only as a top-dressing, they are merely thrown on the surface of the land evenly by the hand. The quantity made use of is mostly from twelve to fifteen statute buclhees to the acre, as the soil and crops may be. It is believed, that too large quantities would be hurtful. Some do not hold them in much estimation for grain crops, or those of the pea kind; but they are preferred to all other manures, especially for all sorts of artificial grasses. In turnip crops, they are said to afford much in preventing the ravages of the fly; and in those from the seeds of grass, the farmers suppose, that on an acre which is manured with them, the produce in hay will be nearly a ton more than what it would have afforded without them.

On meadow-land too, in some cases, from fifteen to twenty bushels of these ashes may be laid with great improvement to the grasses. The effect of them is supposed to be not of longer duration than two years. Several acres may be gone over with the scowing of the ashes in the course of a day, by one person and a two-horse cart. See Ashes and Sulphate.

Turf-Drain, a term applied to that sort which is formed in turfy situations, and filled with turves or peats; and which is done in an useful, neat, and successful manner in many districts, especially in Lancashire, as may be seen in the corrected agricultural report of that county. It also signifies a sod-drain. See Surface-Drain.

An improved mode of turf or sod-draining may likewise be met with in the report on agriculture for Cheshire.

Turf-Hedge, that sort of fence which is formed by means of fods, or the dug-up turf, and plants of different kinds. For turf-hedges that are to be fix feet high when finished, six-feet bales are allowed in some places, as in Cornwall; and as they lette a good deal, half the height is only built at a time, with the filling well ridged up in the middle to throw off the wet. This remains to lette perfectly, when the other half is laid, and the proper plants or cuttings put in. This is thought to be an improvement in the forming of this sort of fence. See Fence.

Turf-Hoyle, in Rural Economy, that sort which is formed of the turf cut from land, and which is common in the northern parts of the island.

Turf-Moff, or Bog, a term applied to a tract or extent of turfy, moffy, or boggy land, from which turf is cut, or which stands in need of being reclaimed and brought into order by suitable draining, and the proper application of weighty earthy substancess of different kinds. See Bog, Moors, and Mosses.

Vol. XXXVI.

TURF

Turf-Spade, a tool of this kind, which is used in cutting turf for fuel. It is about four feet in length with the handle, and four inches in breadth, being made sharp in the mouth part, and having a brown iron on one side of it, which is bent or turned up to a right angle, that it serves to cut and separate one side of the turf from the bed of turfy matter, as the back and mouth of the implement do the other.

The work of cutting the turves for burning by means of this spade, is performed somewhat in this manner: the ground being first marked out on the surface in a straight line, of a length at pleasure, and between three and four feet in width, is then dug level on the surface with a common spade, the whole of the bad and imperfect turfy parts being removed. The turf is then cut by a person standing in the pit or ditch, with the narrow spade described above, which is laid at the lower end with iron, as has been laid, in a sharp manner. By this means every turf is cut and formed into a long fort of square, which is then taken from the workman, and spread on the ground in a clothe manner, until dry, when they are set up on end, three or four together, and afterwards put up into windowds and small stacks, till ready to be led or carried home for ufe.

The spade which is made use of in cutting the turf or peat for being reduced into ashes in Berkshire, is somewhat of this form too, but it has a considerably greater length of the mouth-part. The turf or peat, when dug by it, is carried from the spot in little wheel-barrows, to a short distance, where it is spread on the ground, and after lying some days, the pieces are turned, which after being several times repeated, a heap is made of it, in the middle of which dry turf is put, which is set fire to, and the whole slowly burnt, additional quantities of turf or peat being occasionally supplied, so as that the burning may be slow and smothering. The heap is mostly of a circular form, and rather flat at top, being small at first, but ultimately sometimes two or three yards in depth, and fix or seven in diameter.

The remaining materials, when pafled through a riddle, are taken away, in a covered manner, to great distances.

Turf-Sewing, an Indian method of curing diseases, which has been found to succeed very happily on many trials.

Paul Dudley, esq. gives an account of a man of seventy-four years old in New England, who drinking cold water when very hot, had a pain letted in one side and arm, which baffled all art to remove; till after nine weeks confinement to his bed, when he was given over by every body, it was proposed to try this method of cure upon him.

An oven full of turf was ordered to be cut; the turves were of about eighteen inches square each, and were of the nature of the Englih turf used in gardens.

The Indian doctor, before the turf was put into the oven, rubbed over their grassy side with some fort of oil or spirit, and then putting the two grafes sides together, placed them in the oven. When they had been two hours there, and were well baked, he took them out, and made a bed upon the floor, the place for the head being a little raised; the old man was then taken out of bed without his shirt, but wrapped in a sheet, and being laid on the turf-bed, such another parcel of the hot turf was laid over him. The turf was laid thickest on that side where the pain was, but none of it was put on his breast or head.

He was then covered with a blanket to keep in the heat, and while he was in this warm bath, he was continually suppled with warm cordials to keep him from fainting, of which he was in great danger. After he had been in this bath about three quarters of an hour, which was as long as
he could bear it, he was put into a bed very well warmed, without his shirt, where he soon fell asleep, and sweated to that degree, that it ran through the pillow and bed on the floor. After about two hours' sweat, they rubbed and dried him, and put on his clothes, and the old gentleman found himself much eafeed and refreshed. The operation was performed in the morning, and before night he walked about the house comfortably, his pain being almost all gone. The cording were, after this, repeated, and, on the fourth day, the sweating was performed again; the day after which, the old gentleman was well enough to go about his busines. He lived eleven years afterwards in perfect health, and free from pain.

Great care is to be taken in this operation that the patient do not lie too long in the turf: in many cafes, a quarter of an hour is found to be long enough; and the general rule is, that as soon as the patient begins to fetch his breath short or faint, he must be put to bed immediately, and the cordin must by no means be omitted, for the life of the patient is endangered without them. Phil. Tranf. N° 384, p. 129.

TURFAN, in Geography. See Tourfan Hotun.

TURFING, in Gardening, the operation of laying down turf. In preparing the ground for this purpose, it should, where loofe, be well trodden, or occafionally rolled and rammed; then be properly levelled on the surface with the spade, and afterwards raked smooth; when it is ready for laying. In laying the turf, they should be unrolled regularly on the ground, each in its place, making them join close edge to edge, fo as to form at once a close even fward; beating the whole down close and even afterwards with a heavy wooden beater, to fettle the roots of the grafts clofe to the earth, as well as to form the surface equally clofe, firm, even, and smooth; the turf thus foon ftriues root below, and grows above, without any further care in this part of the busines, except occafionally beating down any swelling inequalities, and fometimes rolling it with a heavy iron roller. Sometimes, when turf is laid in the fummer, or in the early part of autumn, in dry hot weather, it will shrink and open considerably at the joinings, and affume a decayed-like appearance. In this cafe, a few good waterings would be ferviceable; but fhould this be omitted, the firft heavy rain will moftly recover the whole effectually, and swell the fward, fo as to clofe all the chafins, and revive the verdure of the grafts plants, when a heavy rolling fhould be given, to fettle the whole firm and even, and to give the surface a neat appearance. The principal fhirmpoft to be regarded in this part of work, is to have the surface of the ground well levellled before the turf are laid down, for where this is neglected, it is utterly imposfible to do the bufines fo as to look well.

In refpeft to the after-culture of ground formed with turf, it is chiefly to give occaftional mowings, from the spring through the fummer till October, and offenfionally poiling and rolling the surface to keep it even and level. The mowings in these cafes fhould confantly be performed before the grafts gets to too high a growth, fo as to injure the surface appearance by rendering it tender and of a bad colour.

TURFING-Iron, an implement made ufe of for flaying or cutting up grafts, turf, or fward from land for the purpofe of turfing: it is formed with an iron plate for the cutter, from fix to leven or eight inches wide, a little rounding forward at the edge, which is thin and sharp for cutting, but thickening gradually behind to the upper part, where it is forged to a long bent iron handle, the bending fo formed as to admit of the plate or cutter refting flat with its back on the ground, in the proper poftion for readily cutting or flaying the turf or fward evenly off, of a regular depth or thicknefs; the handle at top being either formed of iron, with an opening like the top of a fpade, or a focket in which to fix a short wooden handle of that kind. In using it in cutting the turf or fward, the workman takes hold with one hand in the top handle, the other below, with the latter guiding the tool in the proper position, whilst the upper hand is placed against his knee, &c. which affifts him in thrusting it forward into the ground evenly under the fward; and thus he proceeds along in a regular manner, moving the tool gradually along at each froke, level and even, at an equal depth. Thus, as one range of turf or fward is pared off, another is begun with until the whole work is done.

It is neceffary that the edges of the cutting iron fhould be well fpecked, and ground perfectly sharp, as the labour by fuch means is rendered much lefs, and the work far better performed.

TURFING-Spade, in Agriculture, the name of an implement ufed to under-cut the turf, after it is marked out with the plough, in the old practice of paring and burning the turfy surface of land.

TURGA, in Geography, a town of Bengal; 40 miles S. of Dofea. N. lat. 22° 22'. E. long. 85° 5'.

TURGANA, in Ancient Geography, an ifland on the coaft of Arabia Felix, in which was a very magnificent temple dedicated to Serapis, according to Ammianus Marcellinus.

TURGESCENCE, TURGESCENCY, a swelling or growing bloatet.

TURGHE, in Geography, a river of Wales, which runs into the Cothey, in Caermarthenhire.

TURGOT, ANNE-ROBERT JACQUES, in Biography, an enlightened and patriotic minifter of flate, was born at Paris in the year 1727, and studied theology at the Sorbonne, where, in his 22d year, he delivered two Latin difcourles, "On the Advantages derived to Mannkind from the Christian Religion," and "On the Progrefs of the Human Understanding." At the age of 24 he tranflated Virgil's Georgics, and thus a change took place with regard to the direction of his studies; fo that he became attached to the principles of Quefuy, and of the fect called Economists. Having quitted the Sorbonne, he was appointed intendant of Limoges; and in the course of twelve years, during which he occupied this office, he conduct in distributing alms and providing a supply of food in a time of fecrivity, and in introducing various improvements in the province, esta blihed his character, and commanded for him great refpeft. With him, it is faid, firft originatet the institution of charitable work-shops. As comptroller-general of the finances, he adopted various regulations, which, without injuring the revenue, encouraged industry, promoted agriculture and commerce, and lightened the burdens of the lower classes. Although many of his beneficial plans of reform were treated with contempt and ridicule, he succeeded to a confiderable degree in ameliorating the flate of the country. His re solution, diligence, and activity, overcame many obfacles and difficulties, in fomuch that the benevolently difpofed Lewis once faid, on leaving the council-chamber, "No one loves the people but M. Turgot and I;" nevertheless, the cabals againft him prevailed, and he was difmissed from the important office which he occupied with fo much advantage to the people. As an incitation to his industry, he alleged, that in his family life was not protracted beyond the age of 50; and therefore, having but a few years before him, he determined to leave nothing unfinished. Accordingly he died in 1781, at the age of 49. Of the pieces which
which he published, Condorcet has given an account in a "Memoir on his Life and Writings," 1782, 8vo. La Harpe has given us the following sketch of his character. "He was a man of a strong mind, whom nothing could divert from justice, even at court, and in the highest places; of an unalterable equanimity, even in the midst of the oppositions and disfrufs of his ministry; of a laborious activity, which device could not flacken. He had only two passions, that of science, and that of the public good. During the few years in which he occupied the post of minister of finance, he bent all his views to the relief of the people. Attaching to the doctrines of the Economists, he developed them in edicts which tended to the encouragement and improvement of agriculture. He was the first among us who changed acts of the sovereign authority into works of reasoning and perfusion; and it is perhaps a question whether this method may be useful or dangerous. His suppressions and reforms in the finance raised him many enemies; but among all who complained against him and reproached him, not one attacked his integrity. No one disputed the purity of his motives, but fault was found with his measures. Perhaps there was something unyielding in his character, which impeded the good which he wished to effect. Further, the courtiers could not pardon a minister who encircled himself with men of letters and philosophers." His innovation in favour of the people created a prejudice against him, on the ground of his being one of the promoters of the French revolution. Nouv. Dict. Hist. Gen. Biog.

TURGHUT, in Geography. See DURGUT.

TURHUSSY, a town of Bengal; 17 miles N.N.E. of Palamow.

TURIA, in Botany, an Arabic name, retained by Forskal, Fl. Aegipt.-Arab. 165, and cited by Jussieu, Gen. 395, under Anguria. The above name, if wanted, might not be inadmissible; at least, if any fuch, of barbarous origin, are allowed to remain. But whether the five, partly doubtful, species on which Forskal has founded his genus be really entitled to stand alone, or whether they may be referrible, as Jussieu hints, to Anguria, or to any other genus of the Cucumber tribe, no one, conversant with Forskal's works, will, fully, venture to determine. He attributes a pendentulous corolla to these plants, which is an unexampled in their natural order, and which, by other parts of his account, appears to be an error. The villous cylindrical fruit, tapering at each end, and marked with ten furrows, will scarcely afford a generic character.—Forskal's first species, Turia of the Arabs, to which he has given no specific name, is cultivated in Yemen, but we are not told for what purpose. Some of the others are called, in that country, Leola or Lua, Giff, and Moghad.

TURIAMO, Bay of, in Geography, a bay of Caraccas, three leagues to the windward of Porto Cabello, which extends one league from north to south. Having no shelter from the north wind, and the country round it affording no commodities sufficient for inducing merchants to encounter its inconveniences, fearfully any ships resort to it. The cape is the same with regard to Pataneu, Borburata, and Sianega. The whole population of these bays confines of no more than a small party of soldiers, flattered there to prevent smuggling.

TURIANO, a river of Sicily, which runs into the sea, 10 miles N.E. of Milletta.

TURIAS, the Guadalquivir, in Ancient Geography, a river of Hither Spain, on the banks of which was built the town of Valentina.—Alfo, a river or torrent of Italy, mentioned by Silius Italicus (l. xiii. v. 51), and thought to be the fame with that mentioned by Livy, and placed six miles from Rome. But the orthography is much controverted.

TURIASO, TARAONA, or TARAZONA, a town of the interior of Hither Spain, towards the south-west. Pliny speaks with high commendation of its iron. It was municipal. It was situate east of Numantium, and south-west of Calaguris.

TURICUM. See ZURICH.

TURIGA, a town of Spain, in Bética.

TURIGA, in Geography, a river of Ruftia, which runs into the Niznei Tagutula, N. lat. 66° 12'. E. long. 98° 44'.

TURIN, a city of France, capital of the department of the Po, during the revolution, before and finance capital of Piedmont, situated at the conflux of the Po and the Grand Doria, about seven miles from the foot of the Cottan Alps, in the road from France to Italy, by the way of Mount Cenis. According to Pliny, the inhabitants derive their origin from the Ligurians, and were anciently called "Taurni." Hannibal, the Carthaginian general, when he invaded Italy, took and destroyed the town, because the inhabitants would not take part with him; which frightened the other people who inhabited the banks of the Po. It was erected into a Roman colony by Julius Caesar, who gave to it the name of "Julia," and it was called "Augusta Turinorum" by his successor Augustus. It was successively subjected to the Goths, Huns, Eruli, and Burgundians, who ruined and destroyed it; but it was soon rebuilt, though not so large as before. When the Lombards became masters of the country, it became the capital of one of their principal duchies. Some of the dukes became kings of Italy. After Charlemagne had abolished the kingdom of the Lombards, Turin became subject to the marquis of Sufa, who had the charge of guarding the paffages of the Alps, and continued in that family to the death of Ulric Manfred, the last marquis of Sufa, in 1302; whose daughter, Adelaide, married Odo, comte of Maurienne and Savoy. Turin submitted to him and to his descendants, who fine poifefled it with little interruption till its union with France; before which Turin was the fee of an archbishop, and was paid to contain 110 churches or chapels, three hospitals, and about 80,000 inhabitants. The approach to it is magnificent, and the environs beautiful, though thick fogs from the two rivers are frequent in autumn and winter; so that the air of Turin is then very thick and moist. The four gates are highly ornamental; the streets in the New Town are wide, straight, clean, having plenty of water running through them, well built, in a good taste, chiefly of brick ituccoed, and generally terminating in some agreeable object. No inhabitant could rebuild or repair his house but on an uniform plan, laid down by government, for the improvement of the city. The fortifications of Turin were regular, and kept in excellent repair. The citadel is a regular pentagon, confifting of five strong bastions, and is reputed one of the strongest in Europe. At the end next the new gate is the arsenal, which, besides the armories found in such places, contains a cabinet of minerals, a good chemical laboratory, a library of books in mineralogy and metallurgy, and furnaces for casting cannon: here, also, are mathematical, mechanical, and other matters, for the instruction of engineers, miners, &c. The garrison of Turin was changed at the end of two years, and then there was a general review. The university was founded first in 1405, by Aramdeo, duke of Savoy, and consists of schools, wherein 24 professors read lectures, from the 3d of November to the 24th of June; the royal library, in which are about 50,000 volumes of printed books, besides manuscripts, is open every day, 11 2;
day, except holidays, both morning and afternoon. The royal museum has a good cabinet of medals, and a collection of antiquities, found chiefly in Piedmont or Sardinia, and elegantly arranged: also of natural history, as shells, and English minerals, polished marbles, and hard stones, petrifactions, corals, zoophytes, and some minerals, collected by Donati in the Adriatic; also, some shells of natural curiosities, which Donati during his travels in Egypt and Arabia, sent from Goa. In the military academy, young gentlemen, both natives and strangers, might be instructed in the exercises at a moderate expense, the king defraying a part of the charge attending this institution. The palace is in a simple and noble style of architecture. The apartments are handomely fitted up and furnished; the ceilings painted by Daniele di Sandterre and others. The town-house contained a great collection of pictures, among which were many good ones. The king's theatre, a great opera-house, is reckoned one of the finest in Europe. The buildings which are most esteemed in point of architecture, are the palace of the duke of Savoy, called Castello Reale, by Filippo Guvara; the Carigranno palace, by Guarini; the buildings of the university, and the town-house. There is a literary society at Turin, which has published memoirs, under the title of Miscellanea Philosophico-Mathematica. The chief trade of this city and country is in thrown silk, which is sent to England and Lyons; they manufacture, however, some of it into excellent frockings, and good silk for furniture. In the year 1536, Turin was taken by the French, and again in the year 1640, after a long siege. In the year 1766, the French enemy made another attempt; but after besieging it upwards of three months, under the conduct of the duke of Orleans, they were driven away with great loss, by the duke of Savoy and prince Eugene. In December 1797, the French took this city, and levied on the king of Sardinia a contribution of 2,000,000 livres. In May 1799, it was taken by the Austrians and Russians, and the citadel surrendered soon after. It was afterwards surrendered, with the whole of the principality of Piedmont, to the French republic, but restored after the revolution and re-establishment of the French government. N. lat. 45° 3'.

At Turin, accounts are kept in lire, soldi, and denari; Piemontese currency: 12 denari = 1 soldo, and 20 soldi = 1 lira: accounts are also kept in francs and centimes, as in France. The gold coins now in circulation are carlini, of 5 doppie or piccoli, with half carlini in proportion, and doppie, with halves and quarters in proportion: the carlini pass for 120 lire, and the doppia for 24 lire; Piemontese currency. The silver coins are reals of 6 lire, with halves, quarters, and eighths in proportion. Here are also base silver coins of 34 and 23 soldi; and copper coins of 1 soldo; also pieces of 3 denari, called quattrini. The doppia contains 1721 Troy grains of fine gold, or 1991 grains of English standard gold, and is worth 15. 21. 6 d. in English gold coin: the ledu contains 492 Troy grains of fine silver, or 532 of English standard, and is worth 51. 8 d. in sterling silver coin: thus the lira Piemontese currency may be valued at 111. 4. 0 d. Sterling. The rubbo, commercial weight, is 25 lbs., each pound containing 14 mark, or 12 oz. of the gold and silver weight: so that 70 lbs. of Turin = 59 lbs. avoirdupois. The facco, corn measure, contains 3 lega, 6 mine, or 48 cappelli; and 22 facchi = 9 English quarters nearly: the brenna, wine measure, contains 6 rubbi, or 36 pinte; the rubbo weighs 25 lbs. of Turin, and holds about 2½ English gallons. Oil is sold by the rubbo of the same weight, or 20½ lbs. avoirdupois: the rolo or ell is = 2½ English palmi = 23¾ English inches; the foot = 143.2 French lines = 34½ English inches; so that 180 Piemontese rali = 119 English yards, and 33 Piemontese feet = 35 English feet.

Turin exchanges with, and gives Amflerdam, 38 soldi, more or less, for 1 florin banco; Augsburg, 46 soldi for 1 florin current; Geneva, 86 soldi for 1 eeu of 3 livres current; Genoa, 190 soldi for 1 sequin; Leghorn, 82 soldi for 1 pezza of 8 reali; London, 409 soldi for 1 sterling; Lyons and Paris, 50 soldi for 3 livres Tournois; Milan, 98 soldi for 1 filippo of 7½ lire current; Rome, 90 soldi for 1 fucido of 10 paoli; Venice, 54 soldi for 1 ducat piccoli.

The usance for bills drawn from London is three months after date, from Holland two months, and from France one month. The holder of a bill payable after date, may either demand payment when it becomes due, or wait till the fifth day; but bills at sight must be paid when presented. Kelly.

TURIN, a large post-township of New York, in the S.W. corner of Lewis county, 143 miles N.W. of Albany. It comprises seven townships, viz. Pomona and Lucretia, adjoining Black river, and on which are the Settlements; Flora, Xenophon, Ruckelbly, Hybla, and Penelope, unsettled. The settled part is about nine miles along Black river and seven back. The inhabitants are emigrants from the eastern states, farmers of plain domestic habits. Here are nine school-houses, in which are also held the meetings for worship. The whole population in 1810 was 856, and the senatorial electors were 111; in 1812, 170. The Black river road from Johnstown leads through this settlement, which has an excellent soil, and in which are two grain-mills, six saw-mills, a carding machine, and two distilleries of grain and fruit spirits.

TURING, a town of Sweden, in the province of Blekingen; 7 miles N. of Carlcorna.

TURIN, a town of Sweden, in Sudermanland; 24 miles W.S.W. of Stockholm.

TURINI, Francesco, in Biography, an eminent Italian composer of the seventeenth century, who gained great reputation by the composition of canons. He was organist of the Duomo at Brescia, and published many learned compositions for the church and chamber; but particularly a mass in 1643, for four voices, in canon.

In this work there is a perpetual fugue, upon the subject of which Handel has composed one of his finest instrumental fugues; but, according to his usual practice, whenever he adopted another's thought, he has enlivened and embellished Turini's theme, like a man of true genius, with a counter-subject; and shewn that he saw farther into the latent fertility of the fame series of notes, than the original inventor, whose theme was the following:

\[ \text{\textbf{Turin}} \]

The first sonatas for two violins and a bafe, which our musical enquiries have been able to discover, were published by Turini, with a let of "Madrigali a una, due, tre Voci, con alcune Sonate à due et à tre," Venezia, 1624. We were intrigued by this early date to score one of these sonatas, which consisted of only a single movement, in fugue and imitation throughout; in which so little was made of the power of the bow in varying the expression of the main theme, at each part might have been as well played on one instrument as another.

The violin does not appear to have been Turini's instrument. A canonic need have nothing else to think of, than
the solution of harmonical problems, which require such intense application as to leave him not a single idea to dwell on any thing else.

TURINSK, in Geography, a town of Ruffia, in the government of Tobolisk, containing a wooden fort, seven churches, and about 350 houses; 144 miles W. of Tobolisk. N. lat. 58° 25', E. long. 63° 44'.

TURINSKOI, a town of Ruffia, in the government of Tobolisk, on the Niznei Tungufka; 132 miles E. of Turuchank.

TURIONS, in Botany, the first young tender shoots which plants annually put forth.

TURIRANA, in Geography, a river of Brazil, which runs into the Atlantic, S. lat. 1° 30'. W. long. 4° 46'.

TURISSA, in Ancient Geography, a town of Spain, at the foot of the Pyrenees, in the country of the Vafconi, N.E. of Pampela.

TURK, in Geography, an appellation of very ancient origin and of very comprehensive extent. It is said to be derived from the name of one of the sons of Japhet, the eldest son of Noah, who is generally allowed to be the progenitor of the Moguls and Tartars. This opinion has been adopted by those who have been most conversant with Oriental literature, and the Tartars themselves have expressed their persuasion of its truth. Accordingly it is said, that the progeny of Magog, Meshech, and Tubal, subverted both the Scythians, and consequently the country of the ancient Moguls and Tartars. If it be admitted that the Turks and Tartars were originally the same people, whatever is advanced concerning the first progenitors and early antiquities of the one, must, with the slightest propriety, be applicable to those of the other.

It has been alleged as highly probable, that both the present Turks and Tartars are descended from the Scythians of Ariless Proconneus, and the Scythian Nomades of Herodotus (lib. iv.) Upon this supposition, the ancient Turks or Tartars cannot be considered as one of the earliest nations of antiquity, nor as occupying a tract for many ages of very considerable extent. For they scarcely made any figure at all before the reign of Cyaxares, king of the Medes, or the time of Ogres Khan, about 637 years B.C. when they drove the Cimmerians from their territories bordering upon the Palus Moetis into the Upper Asia. Nor could their primitive seat, upon the eastern bank of the Volga or Araxes, have been at that time very extensive; since it is well known that they were then a people of little note, and in the vicinity of some nations who were contending for unlimited empire. In the time of Herodotus, Scythia lay only between the 45th and 57th degrees of longitude, and the 47th and 53d degrees of N. latitude, so that the Scythians at that period cannot be regarded as a very formidable power. The first Scythian king, according to this historian, did not live above 1000 years before Darius Hytafaspe invaded Scythia, in the year B.C. 514; or by reducing the calculation of the Greeks and other ancient nations, as for Isaac Newton has done, it may reasonably be supposed that the first Scythian prince could not have preceded Darius Hytafaspe above 800 years. At this early period, therefore, or 1300 years before the commencement of the Chriftian era, the countries bordering upon the Palus Moetis, as well as the Euxine and Caffian Seas, must have been very thinly peopled. The Tartars, however, though they derive their name from Tatar Khan, pretend that this was not their primitive appellation, but that they are the descendants of Turk, as we have already said, the eldest son of Japhet, whom they call Japhis; and accordingly maintain that they were originally denominated Turks; which name they seem to have retained till the time of Genghis Khan. But when that prince reduced all the tribes bearing the name of Turks under his obedience, they, with regard to their neighbours, gradually lost it, and were by them afterwards called Tatars. Nevertheless, though this was the case with respect to their neighbours, most of them have always denominated themselves Turks; nor do they allow, that any other nation has the least title to that denomination. The name of Tatars was at first probably applied to one particular tribe or horde of the Tartish nation, confining of persons more considerable, warlike, and better known to the Aftatics, on account of their military exploits than the rest, till the time of Genghis Khan. This was succeeded by that of Moguls, which prevailed as long as the dominion of the people so called lasted over the southern provinces of Asia; when that expired, the former appellation was resumed. It is observable, that Sherif al Edrith, commonly called the Nubian geographer, makes no mention either of Moguls or Tatars; but intimates that the whole country bearing now the denomination of Eastern and Western Tartary, was peopled by different cantons of Turks. This is the more remarkable, as that author wrote but a little before the reign of Genghis Khan, about the year of Chrith 1170.

Turk, it is said, was appointed by his father Japhet to bear the chief rule in his family after his death; and being a man of superior genius, he invented many of the conveniences of life, made tents, and governed his family and subjects with great justice, prudence, and moderation. He also formed a body of falutary laws for his descendants. Turk is said by the Tartars to have had four sons; and from him the country in which he settled was called Turkeftan, and his subjects were denominated Turks. From Tatar Khan, the Tatars or Tartars derived their name, as the Moguls did their's from Mogul or Mung' Khan. These two branches of Turks, being rendered independent of one another, formed two considerable empires, which flourished for several generations. See Mongoles and Tartars.

The name Turk, says Volney, originally, was not peculiar to the nation to which it is now applied; it denoted, in general, all the hordes dispersed to the east and even to the north of the Caffian Sea, as far as beyond lake Aral, over those vast countries which have taken from them the denomination of Turkeftan. These are the same people, who were known to the ancient Greeks by the names of Parthiaus, Mafafetcs, and even of Scythians, for which we have substitued that of Tartars. These formed a nation of shepherds, continually wandering like the Bedouin Arabs; and in every age exhibiting themselves as brave and formidable warriors. Neither Cyrus nor Alexander was able to subdue them. The Arabs, however, about 83 years after Mahomet, by order of the caliph Waled I. invaded the country of the Turks, subdued them, and imposed upon them their religion; and obliged them to pay tribute. But the power of the caliphs was refited and vanquished. Like the Bedouins, the Turks were divided into tribes or camps, called "ordou," of which has been formed the term borde; and these tribes, allied or at variance, according to their several interests, were perpetually engaged in wars. Hence we fee, in their history, several nations, all equally called Turks, alternately attacking, destroying, and expelling each other. Volney, in order to avoid this confusion, has confined the name of Turks to those of Constantinople, and given that of Turkomans to their predecessors. (See Turkomans.) For a further account of the Turks, see Turkeftan and Turkey.
TUR

TURK’S-CAP, in Botany, a name given to a species of lily. See LILIUM.

TURK’S-HEAD, a name sometimes given to the melon thistle.

TURK’S TURBAN, a name given to a species of ranunculus.

TURK ISLANDS, or TURK’S ISLANDS, in Geography, a cluster of small islands among the Bahamas, the largest situated N. lat. 21° 20’. W. long. 71°.

TURKAL, a town of Asiatic Turkey, in the province of Sivas; 25 miles S.E. of Amaref.

TURKAREL, a town of Candahar; 30 miles W. of Cabul.

TURKEIM. See TURKHEIM.

TURKESTAN. See TARAZ.

TURKESTAN, (formed of TURK and efian, a Persian word signifying country,) or Turan, a country of Asia, bounded on the N. by deserts, which separate it from the dominions of Russia, on the E. by a part of Tartary, belonging to the Kalmucks, on the S. by Bucharia, and on the W. by Charafm or Karafm, near 300 miles in length, and not much less in breadth. It is at present divided between two Tartar khans or chiefs; one of them, residing at Taftkund, possesses the eastern part; the other, who possesses the western part, resides at Turkeftan or Taraz. The latter is generally called the khan of the Karakalpah. Turkoftan, taken in a larger sense, is understood to include all the country between Russia to the N. and Bucharia to the S., and between the Caffian sea to the W. and Chinese Tartary on the E., not less than 700 miles from E. to W. and 350 from N. to S.

In ancient periods, Western Turkeftan and the N. of the Caffian were the seats of the Mallafetæ; to the S. of whom were the Scythians, on this side of the Ilmaus or Belur-Tag. In the fifth century, the Turks, having migrated from their habitations near the mountains of Bogdo, adjoining to those of Altai, or the mountains of gold, and having impaled to the country the name of Turkeftan, and forming a grand branch of the Tartars, or Huns, spread themselves to the Caffian. They soon after subdued the people of Sogdiana, and the Nephthalites of great Bucharia, called in that ignorant age White Huns. As the Turks founded their first western settlements in the regions now held by the Kirgus, they thence received the name of Turkeftan, the capital city being denominated Otrar, and sometimes Taraz, also called Turkeftan. From the centre of their power issued those Turkifh armies, which have changed the destinies of fo many nations. Little Bucharia was called Eastern Turkeftan from a similar cause; but appears to have been first subdued by the Turks of Cathay, on the N.W. of China. The Turks and Huns may be considered as one and the same Tartar race, totally unknown to Europeans till the appearance of the latter, who first passed the steppes, deserts and mountains which had concealed them from observation till the fourth century. The Huns, who appeared about A.D. 375, feemed to the writers of the period as a new and unknown race, having passed in a course of uniform depredation from Asia to Europe; while the Gothic and Slavonic nations had left many of their settlements vacant, in their progres into the Roman empire. But the Turks, though originally the same people, perhaps warned by the fate of their brethren, made a slow and gradual progres, and appear to have been blended by marriages and conquests with the Slavonic and Gothic tribes on the N. and E. of the Caffian. Such was the origin of the name of Turkeftan, from which the Turks spread defolation over the most beautiful countries of the Eait, and even threatened the liberties of Europe. Pinkerton’s Geog. vol. ii. See BUCHARIA and INDEPENDENT TARTARY.

TURKEY, an extensive empire, comprehending a great number of countries on the continents of Europe, Asia, and Africa, and several adjacent islands.

Turkey in Europe extends, according to the statement of Pinkerton, about 870 miles in length, from the northern boundary of Moldavia to Cape Matapan in the Moree; and its breadth, from the river Unna to Confiantinople, is about 680 Britifh miles. It is computed to contain 182,560 square miles. Its eastern and southern boundaries are formed by the Euxine or Black sea, the sea of Marmora, the Archipelago, and the Mediterranean. Its utmost northern limit is now the river Danifer, and the western confints of an arbitrary line, sometimes supplied by rivers or mountains. In its whole extent it comprehends many ancient kingdoms and republics, which, since the subjugation of its greater part in the 15th century, after the fall of Confiantinople and of the Byzantine empire, afford only the records of classical names and events. Moldavia, the moft northern province, was part of ancient Dacia; and Jaffy or Yaffy, the capital, was the “Jaffiorum Municipium” of the Romans. Budzec, or Beflarabia, was the country of the Hetæ and Peucini. Walachia was also a province of the ancient Dacians; and Bulgaria, on the S. of the Danube, embraces nearly the two provinces of Media. Romelia, a fparicious territory, contains ancient Thracia, Pannonia, Macedonia, and the northern part of the confitical country of Greece; and the Morea is equivalent with the ancient Peloponnesus. Dalmatia retains its ancient appellation; while Servia and Bofnia represent ancient Pannonia. Turkifh Croatia, the moft western province of the empire, forms a portion of ancient Pannonia, with probably a small district of Noricum; but the Turkifh part of Croatia is a diminutive province, about 40 miles in length by 20 in breadth, bounded by the river Save on the N., and partly by the river Unna on the W. In modern times Turkey, linking before the power of Russia, has loft the provinces of the Crim and New Servia, which, with several Asiatic districts, have surrendered to Russia; and on the W., Tranfylvania, Slavonia, with the Buckovin and part of Moldavia, and a great part of Croatia, have been fubjugated by Austria. Of the original population of the Turkifh empire, we have already given some account under the article TURK; and it appears to have been derived from the ancient Scythians on the Euxine, the progenitors of the Dacians, Thracians, &c. and even of the Greeks. These were originally blended northward with many Sarmatic or Slavonic tribes; which on the fall of the Roman empire migrated towards the S., so that about one-half of the population may now be regarded as Slavonic. Walachia, however, is fupposed to contain many descendants of the ancient Roman settlers in Dacia. This original population, in conquence of the extent of the Turkifh empire, has been blended with various Asiatic tribes, among whom the Turks constitute a part. Of that branch called Ottomans, and the commencement of the appellation of Ottoman empire, we have already given a brief account under the articles OTTHMAN and OTTOMAN; and for the more remote antiquity of the name and power of the Turks, we refer to TURK. Those Turks, or Turkomans, defending, about the middle of the sixth century, from the Altaian mountains, spread as far as the lake Massotis; but their progres was refticted to the region near the river Oxus: from the Oxus and Samarcand they afterwards spread to the E. of Perfia, where Mahmoud of Gazza eftablifhed a powerful king- dom, subdued by the Turks of Bochara, who in the 11th century
The Turks, and the decline of the Ottoman empire. We may here observe in general, that the Turkish dominion, wherever it has prevailed, has been detrimental in a very high degree to the best interests of humanity, and to every improvement, mental or moral, ecclesiastical or civil.

The religion of the Turks is the Mahometan; although in this European division of the empire, it is supposed that two-thirds of the inhabitants are Greek Christians. The Turkish sultan has for some centuries been the principal leader and supporter of that attachment to the religion of the Koran, which has been the zeyt and guard of the Mahometan faith. The Mahometan pontiff, or mufti, preaches at Constantinople. The next in rank to him are the muftabs, and from these are selected the inferior muftabs, or judges, through the empire, and the candle-fellers or chief justices. The next class of divines consists of the imams or parish priests, who perform the service of the mosques, or places of worship, while the califs are judges annually appointed to administer justice in the towns and villages.

The Turks have also their monks, denominated derviches, of four orders, dedicated to religious offices, public prayer and preaching. Of these, the Kadri constitute a singular order, appearing almost naked, and displaying their devotion by frantic and extravagant dances. The Greeks retain their priests, bishops, archbishops, and patriarchs; but their church is in the lowest state of degradation, and its dignities are openly sold by the Turks.

As to the government of Turkey, the sultan is a despotic sovereign, but so reformed by the laws of the Koran, to which he is bound to submit, that many Christian sovereigns are reckoned more arbitrary. The despotism of the monarch is balanced by a religious aristocracy; and many circumstances have lately occurred, such as the insurrections of the Janizaries, and the power usurped by the pashas over their own provinces, which indicate the decline and approaching perdition of the empire. The Turkish laws are contained in the Koran, and in the comments of approved and renowned doctors, which have acquired the force of laws. The Turkish empire is chiefly guided by those of Abou-Hanife.

The number of inhabitants in Turkey in Europe has been estimated at 8,000,000, or about 43 to each square mile; but as the countries which it comprehends are intersected by many mountains and barren tracts, this estimate is supposed to exceed the truth. The navy is stated at about 30 ships of the line, and the army at 150,000 of ill-disciplined soldiers. The revenues of the whole Turkish empire are computed at about 7,000,000l. sterling, and the usual expense as not exceeding 5,000,000l. Their revenue is partly derived from a capitation tax on unbelievers, and from the “zeechat,” or cuftoms, but principally from a tax on land of about 6s. an acre, called the “jizie.” Upon the whole, the Turkish empire may be regarded as in a declining state, notwithstanding all its endeavours to secure the friendship of various European powers.

Of the manners and cuftoms of the Turks, our limits will not admit of a minute detail. Marriage is a civil contract, managed by female mediation, and liable to dissolution at the pleasure of either party. Circumcision is performed at the age of 12 or 14. The dead are perfurred with incense, and buried in a kind of shroud, open at both ends, that the deceased may be able to fit up and reply to the interrogatories of the angels of death. The burial grounds are near the highways, and as one grave does not intrude upon another, they are very extensive. With regard to diet the Turks are moderate, and their favourite food is rice, of which they prepare their pilaw, boiling it with
with mutton or fowl, their lappa, which is merely boiled rice, and the techorbe, a kind of broth made of the tame vegetable. The fish of the Archipelago is very good, and the beef tolerable; the hares, partridges, and other game are excellent. The meat is usually spread on a low wooden table, over which the master of the house pronounces a short prayer. The frugal repast is followed by fruits and cold water, and these are succeeded by hot coffee and pipes with tobacco. The houses are expensive, and the most costly part of the furniture is the carpet that covers the floor. Their dresses consists of a calico shirt, and the loofe robe is fastened by a girdle, in which is flucked a dagger; while the tobacco-box, pocket-book, &c. are worn in the bosom. The robe is commonly made of English broad cloth, trimmed with furs. The shoes are light flippers. The drefs of the women refembles that of the men, differing only in that of the head, which is a fort of bonnet, formed of paleboard covered with cloth of gold, or other elegant materials, with a veil reaching to the eye-brows, and a fine handkerchief concealing the lower part of the face. In their persons the Turks are very elegantly clad; the females, however, flain their nails with a red tincture. Their amusements are principally such as favour indolence, hunting and military exercises excepted. They are fond of reclining on an elegant carpet, or in a hot fean by the side of a stream, and smoking the delicate tobacco of Syria. With opium they procure what they call "rief," or a placid intoxication, but a stronger dose produces irritation and fercity. Chefs and draughts are favourite games; whereas those of chance are regarded as immoral. Their coffee-houses and baths afford other means of amusement; and the beiram, or festival succeeding their long lent, is a feaon of universal dippation.

The Turkish language is far inferior to the Persian or Arabic, and is formed by a mixture of several dialects. Literature is not wholly neglected, but they have some schools and libraries. In the 18th century a printing-office was fett up at Conflantinople by Ibrahim Effendi, which was at firt much oppofed, but afterwards allowed to print all kinds of books, thoee on religion excepted. The fcriptl fcrif books contains many thofe well fupplied with Oriental MS. texts, and they have their ancient poets, historians, and divines, though of little eftimation compared with thofe of Persia or Arabia. Education, however, is little encouraged: fo that ignorance forms the diftinguifhing character of the nation. Law, connected with their theology, is the chief subjeet of their fudy; but they have no institution that merits the appellation of a college or univerfity.

The chief city of European Turkey, and of the whole Turkish empire, is Conflantinople; next to this in dignity and extent is Adrianople, two miles in circuit, and poffeffing several splendid works, and a confiderable share of commerce; Philippopolis is a city of confiderable importance; Sofia, though meably built, contains about 70,000 inhabitants, and his manageable trade; Siliftria in Bulgaria, on the Danube, contains about 60,000 fouls; and Buchareft, the chief city of Wallachia, is famed to have the fame number; while thoee of Jaffy or Jaffy, the chief town of Moldavia, and Bender of Baffarabia, are each eftimated only at 10,000 or 14,000. Belgrade, the capital of Servia, is fuppofed to contain about 25,000 inhabitans; and thoee of Banjaluka, which is a confiderable town in Bofnia, are eftimated at 18,000. In the fouthern provinces we may firft mention Salonika, containing 60,000 inhabitants, and diftinguifhed by a confiderable commerce; Larifia, 80 Britifh miles to the S., an inland town, containing 25,000 fouls; and Atini, the ancient Athens, of small population. See each article.

If we except the fegaios and royal palaces, the chief edifices in Turkey are the moqubes and caravaners.

The manufactures and commerce of Turkey in Europe are chiefly conducted by foreigners. The Levant trade is almosf entirely centred in Smyrna and the Afiatic shore. The manufactures principally exported from European Turkey are inconfiderable, being chiefly carpets and some few other articles; but the products are currants, figs, faffron, flatuary marble from Pafos, filk, and drugs.

The climate and feasons vary with the different regions comprehended within the limits of European Turkey; and to these we refer for an account of them. The general appearance of Turkey in Europe is mountainous, here and there interperfed with delicious plains and vales; enfranchised by the Danube, which intersects its provinces, and the numerous gulfes of the Archipelago and Mediterranean. The soil is generally fertile, the northern parts producing wheat and rich palture, the middle and fouthern abundance of rice; but agriculture, as well as almoft every other art and science, is neglected by the Turks. The principal rivers of Turkey are the Danube, already mentioned, the Ma-

ritiz or ancient Hebrus, the Vardari or ancient Axius, the Elker or ancient Oelkus, the Morava or ancient Margus, and the Drin, rising N. of Albania, and falling into the Save. Budzag and Walachia, as well as Albania and the fouthern provinces, contain confiderabie lakes. The chains of mountains in Turkey are numerous and extenfive. Here we might mention, if they were not elsewhere noticed, the Carpathian chain, anciently called the Baftanic Alps; the grand range of the Hamus with its branches; and mount Athos of ancient celebrity. European Turkey also abounds with fcrifts. Of its zoology we shall merely notice the jackal, the camel, and hofe, and also its cattle and fheep, which are numerous and of different kinds. Its mineralogy has been little infeigated. The gold mines of Philippick, about eighty miles E. of Salonica, produced in the time of Philip of Macedon annuall about 1000 talents, or 2880,000. sterling; and timber mines were fett in Attica, and other quarters.

The chief ijlands belonging to Turkey in Europe are those of the Archipelago; for an account of thefe we refer to their names, such are Crete or Candia, Negropont, the Cyclades, Sporades, Lemnos, &c. &c.

Turkey in Asia extends from the shores of the fegian sea or Archipelago, to the confines of Persia, through a space of about 1050 Britifh miles. The boundaries towards Peria are the mountains of Arrat and Elwed. Towards the N. the Turkish territories are divided from the Russian by the river Cuban and the chain of Caucafsus; in the S. they extend to the junction of the Tigris and the Euphrates, which laft river separates, for a confiderable in-

terval, the Turkish poftifions from thoee of the Arabs. The diftance from the Cuban to the junction of the Tigris and Euphrates may be eftimated at about 1100 Britifh miles. This extensive empire is divided into nine or ten provinces, viz. Natolia W., Karanam S., and Roum N.E. of Armenia are Guria or Guriel, Mingrelia, and the Akbas of Caucafsus, the ancient Cirafias. To the S. of Armenia, also denominated Turcomania, are Cerdilan or Irak-Arab, part of ancient Perfa, round the celebrated capital Bagdad. The ancient Mafopotamia, between the Tigris and the Euphrates, now partly corresponds with the province of Algeria; and Syria, or Soria, comprehends the celebrated countries along the eafther extremities of the Mediterranean. These provinces are subdivided into governments, arbitrarily administered by pashas. The original population of these regions confited chiefly of Sceytians blended
blended with some few Assyrians from the south. See 
**Turk**, and **Turkey in Europe**, supra.

The prevalent language is the Turkish, to which we 
may add the modern Greek, together with the Arabic, 
Syrian, Persian, and Armenian, with the various dialects 
used by the tribes on the Black sea, and indicating the 
diversity of population. To the account already given of 
the historical epochs of Turkey, we may here subjoin the 
following from Pinkerton. Armenia and Georgia were 
subdued by the Turks in the eleventh century, and the 
whole of Asia Minor soon followed. Their subsequent 
Roum extended from the Euphrates to Constan tinopole, 
and from the Black sea to the confines of Syria. Successive 
warlike princes acquired additional territory from the Mame 
lukes of Egypt and the Persians. Syria, formerly an 
appendage of Egypt, was conquered by Selim II. in 1516; 
Taurus and Diarbekir, the last of which had formerly 
belonged to Peria, were subjugated by the same monarch; 
and in 1580 Abbas, the great sovereign of Peria, was 
obliged to yield three provinces to the Ottomans, though 
he extended his conquests to the ealt; and Bagdad, with 
the surrounding province of Irak-Arabi, became subject to 
the Turks in 1638. The present limits seem to have been fixed 
by the treaty between the Porte and Peria in 1736, since 
which period the Turks have been chiefly employed in 
defending themselves against the Russians; but such had been 
their ascendency over Peria, that in 1727 they had acquired 
the territory from Erivan to Tauris or Tebriz, and thence 
to Hamadan, a boundary which seems to be more precisely 
marked by nature than by the pencil. The antiquities of Asiatic Turkey are those of Balcoc and Palmyra or Tadmur in the desert, and those that have been discovered in the site and plain of Troy; for which see these articles.

The Turkish empire in Asia is estimated at 470,400 

square miles, and the population at 10,000,000; which, allowing 
8,000,000 for the European part, will render the total 
18,000,000. The reader will find a sketch of the manners 
and customs of the inhabitants of Asiatic Turkey under 
this article, which we shall now proceed to mention. The 
Curds or Kurds pass in summer from Moufoul to the 
Sources of the Euphrates, and they are never punished 
either for robbery or murder. They are a pastoral people, 
who conduct their herds from one country to another, and 
extending sometimes as far west as Tocato; where Toursn 
fort, in his time, found other hordes called Tourkomans. 
The Armenians, though Euychian Christians by profession, 
and of course irreconcilable enemies of the Greeks, 
are distinguished by many singular manners and customs. 
They are represented as a servile and polite people; and 
by their frugality and enterprize, are admirably qualified for 
conducting the Levant trade, which is chiefly their province. 
For an account of the Druzes and Maronites, see these 
appellations. In the northern extremities of Asiatic Tur 
key, there are many tribes which have adopted singular 
practices. Six or seven languages are said to be spoken in 
the country between the Euaxine and the Caiphan. The 
Abkhass, called by the Circassians “ Kuh-Hafip,” a people 
beyond the mountains, retain some traces of Christianity. 
The territory of the Tcherkasses, or Circassians, is ex 
tensive: part of it is subject to Ruffia, but their manners 
are invariable. The princes cannot possess lands, and their 
nobles are chosen by the princes from the vaflals, or third 
class. Public measures are proposed by the prince, and 
debated by the nobles and deputies of the people, on a spit 
denied for this purpose, near the royal residence. The 
agriculture of these people is barely sufficient for their own 
consumption; but they export sheep and borbes, and 
flaves taken in their predatory excursions. The beauty of 
their women has been much extolled. Having received a 
fituitable education, and formed from their youth according 
to their own standard of beauty, they are fold from 20l. to 
100l., and sometimes at a much higher price. Soon after 
the birth of a girl, a belt is twined round her waist, and when 
this bursts, it is replaced by a second; so that their waists 
become very small, and their shoulders broad, which is a 
defect little regarded, on account of the beauty of their 
breasts. On the wedding-night the belt is cut by the huf 
band with a dagger, an operation which is sometimes ac 
cidentally fatal. The bridegroom pays for his bride a 
premier, or “ kelim,” consisting of arms, or a coat of mail; but he must not then, nor on any future occasion, lie 
him, or cohabit with her, without the greatest mystery. 
The young men recommend themselves by their activity 
and address in military exercises; and those who are most 
alert have the privilege of choosing the most beautiful part 
ers. Their musical instriments are a long flute, with only 
three stops, a species of mandoline, and a tambourine. 
Their dances are in the Asiatic style, with little gaiety or 
expression. The women pride themselves on the courage 
of their husbands, and feervously reproach them when they 
are defeated. It is their business to polich and take care of 
the armour of the men. The habitation of a Circassian 
fconsists of two huts, because the wife and husband are not 
expected to live together at meals the whole family is 
affemblcd. Their food consists only of a little meal, pale 
made of millet, and a kind of fermented beer, prepared 
with the fame grain. The Mamelukes of Egypt are flaves 
regularly imported from Circassia and Georgia. In 
Imerita, Mingrelia, and Guriel, as well as in Georgia, 
which forms a Persian province, the barons have power 
of life and death over their vaflals, and form a very 
powerful aristocracy, very formidable to the prince, who 
refides at Cutais. The religion of all these provinces is the 
Greek; but they can scarcely be regarded as subject to 
Turkey. It may be observed in general, after this brief 
detail, that the most striking feature of manners and cus 
toms in the Turkish empire, is that half the people may 
be considered as somewhat civilized, while the other half 
may be regarded as pastoral wanderers ranging over ex 
tensive waftes. Next to the capital of the Turkish empire, 
the next city of Asiatic Turkey in dignity and importance 
is Aleppo, containing about 250,000 inhabitants, where 
the manufactures of flax and cotton are flourishing, and 
whither large caravans frequently resort from Bagdad and 
Baghara, with the products of Peria and India. Damar 
cus is supposed to contain 180,000 souls: Smyrna may be 
regarded as the third city in Asiatic Turkey, and contains 
about 120,000 souls: Prufa is a beautiful city at the 
northern bottom of mount Olympus, and its number of in 
habitants is estimated at about 60,000: Magnifi, or Mag 
ifiea, is also a city of some repute in this quarter of the 
empke; and Kircagatch has rifen to importance by the 
cultivation of cotton, being situated about 40 miles N.E. 
of Magnifi, on the route to Prufa: Angora contains 
80,000 inhabitants, and trades chiefly in yarn for shawloons, 
and in Angora stuffs of its own manufacture from the 
hair of a breed of goats: Tokat is flourishing, and its 
inhabitants are about 60,000; its manufactures are falk and 
leather, and chiefly copper utensils: Bafra, or Baghara, on 
the cliffary of the Euphrates and Tigris, contains 
about 50,000 inhabitants, and is a place of great con 
sequence; as the various products of Europe and hales 
are here exchanged for those of Peria; and opulent 
carcans.
caravans proceed from this most central point of the Oriental trade to the chief cities of Asiatic Turkey:— Baghdad, the seat of the caliphs, and scene of many Eastern fictions, is now reduced to a town of about 40,000 inhabitants:— the ancient and celebrated city of Jerusalem is now a mean town, chiefly depending on the piety of pilgrims; and towards the frontiers of Persia frequent wars have spread depredation; nevertheless Erzeroum, the capital of Armenia, has till about 25,000 inhabitants; but Kars, the extreme town upon the frontiers of Persia, though tolerably fortified, is an inconvenient place. The chief articles of commerce in Asiatic Turkey are carpets, rubarb, and several other drugs. The Levant or Turkey trade was formerly of great consequence to Great Britain; but from the middle of last century it has been more advantageous to France. The state of the Levant trade chiefly carried on at Smyrna appears from the following documents:

France sends coffee, sugar, indigo, cloths, and cochineal.
England, shalloths, muffins, iron, tin, spices, refined sugars.
Holland, muffins, India goods, cloths, spices.
Austria, from Trieste, cloths, glafs, hard-wood, linen, wood, amber.
Ruffia, iron, corn, caviare, dried fish, furs.
Italy, filks and velvets, wax and paper.
European Turkey, wines, filks, tobacco.
Italy, silks and velvets, cottons, filks, drugs.
Egypt, coffee of Yemen, rice.
Barbary, dates, woolen caps from Tunis, butter, wax.

The port of Marsailles, which carries on the French trade with Smyrna, draws the wool and cochineal from Spain; but this country has lately begun to conduct her own commerce. Venice, under the Austrian power, might become the chief port of the Levant buttles. Of the French commerce, the chief staple is coffee: but this cannot be resumed with much vigour till France shall acquire a greater naval power.

Upon the whole, says Pinkerton, if the commerce of Smyrna be at present valued at fifty millions of francs, the English trade for thirty millions, the Dutch for ten, while France shares the remaining ten millions with the emperor, Italy, and other states above-mentioned.

The climate of Asia Minor has been always considered as excellent. The heat of the summer is tempered by numerous chains of high mountains, some of which are covered conflantly with snow. The aspect of Asiatic Turkey is mountainous, intermingled with spacious and beautiful plains, which afford pasture to the numerous flocks and herds of the Turkmans. The foil is various; but the chief agricultural products are wheat, barley, and durra. It abounds also with grapes, olives, and dates. In Syria the agriculture is deplorable, and the pastures are in a wretched condition, being fold, as in Poland, with the foil, and their constant fare being barley bread, onions, and water.

The principal river of Asiatic Turkey is the Euphrates, the course of which may be estimated at about 1,400 British miles: next in importance is the Tigris, whose course is about 800 miles; and both these rivers are navigable to a considerable distance from the sea. The third river is called by the Turks Kizil Irnak, the celebrated Haly's of antiquity, rising in mount Taurus, and discharging itself into the Euxine sea on the W. of the gulf of Sanloum: the river Sacaria, or ancient Sangarius, rises about fifty miles S. of Angora, and joins the Euxine about seventy miles E. of Constantinople: next in rank is the Mazander, rising N. of Apamnea, and winding its course about 350 British miles: the Sarabat is the ancient Hermus, famous for its golden sands. The chief river of Syria is the Orontes, now called Oron or Af, which runs into the Mediterranean.

The lakes of Asiatic Turkey are numerous. The most remarkable are the Van and Urmiah: others are the Dead sea in Syria, fifty miles long, and twelve or thirteen in breadth: that of Rackama, S. of Hilla and the ancient Babylon, about thirty miles long, and flowing into the Euphrates: the Tatta, or Palus Salla of D'Anville, a saline lake about seventy miles long, and one or two in breadth towards the centre of Asia Minor, being the modern Toulfa or salt lake: that of Ulubad in Natolia, anciently denominated the lake of Apollonia, twenty-five miles in circumference, and in some places seven or eight miles wide, sprinkled with several islands and peninsulas, and the grand receptacle of the waters from mount Olympus: the largest of these lakes is called Abouillaou, probably from the ancient name of the city which flood upon it: and about fifty miles to the N.E. was the lake anciently called Ascadius, now Ilnik.

The mountains of Asiatic Turkey are of ancient celebrity: such are the Taurian chain; the Caucasian mountains, ranging from the mouth of the river Cuban in the N.W. to the place where the Kur enters the Caffian in the S.E., and furnishing various chains, such as the Antitaurus of antiquity, and others branching out into Peria; mount Taurus, terminating at the Euphrates and desarts of Algæira: the chain of Taurus is now called Kuren, and extends about 600 miles E. and W. from the Euphrates to the vicinities of the shores of the Archipelago. These and other mountains of Asiatic Turkey are conjectured to be calcareous; while the Caucasus alone aspires to the rank of a granitic or primitive chain. Towards the E. of Armenia is Ararat, properly belonging to Peria; and beyond Ararat are branches of the Caucasian chain, to which probably belongs the mountains of Elwend, or Niphates of antiquity. In Syria, the most celebrated mountains are Lebanon or Levanon, and Antilibanus. On the eastern side of the Archipelago was Olympus (now Kefik Dag); and 140 miles W. of Olympus is mount Ida, the branch of which was called by the ancients Garganus, which gave source to the Granicus, the Simois, and other rivers, most of which directed their course to the N., and extended in western prominences to the Hellepont, amidst which was situated the celebrated city of Troy. Other remarkable mountains of this classical shore, as it has been denominated, were those of Rhod and Tenedus, &c. &c. S. of the Mæander, the Taurus detaches a chain called Cadmus and Grus, bending towards the isles of Cos and the Cyclades. The numerous mountains of Asiatic Turkey are frequently clothed with immense forests of pines, oaks, beeches, elms, and other trees; and the southermost shores of the Black sea present many gloomy forests of great extent. The inhabitants are hence supplied with abundance of fuel, in defect of pit-coal, which has not been explored in any part of Asiatic Turkey. Sudden conflagrations arise from the heatless waste of the caravans, which, instead of cutting off a few branches, set fire to a standing tree. The extensive provinces of Natolia, Syria, and Melopotamia, have been little accessible to European curiosity, since their reduction under the Turkish yoke. In Pinkerton's Geography we have a catalogue of those plants and trees that have been found wild in the Asiatic part of the Ottoman territory. Several dyeing drugs and articles of the materia medica are imported from the Levant, among which are madder, and a variety called alizar, which grows about Smyrna, and affords a much finer red dye than the European kind; jalap, commony, febechen, the ricinus, yielding
yielding by expression caflor oil, squiring cucumber, coloquintida, opium poppy, and spiadenard. The best
horses in Aliatic Turkey are of Arabian extract; but mules
and asses are more generally used. The beef is scarce and
bad, the mutton superior, and the kid a favourite repast.
Other animals are the bear, tiger, hyena, wild boar, jackal,
and dogs in great abundance. On the funiments of Caeceafus
is found the ibex, or rock-goat; at Angora, singular goats
and cats; the gazelle, and deer and hares in great abundance
are found in Asia Minor. The partridges are generally of the
red-legged kind, larger than the European: Hfh is plentiful
and excellent. The mineralogy of these extensive provinces
has not been yet sufficiently explored. The most noted min-
eral waters are those of Prufa, at the bottom of Mount
Olympos: the baths are splendid, and paved with marble.
Walachia furnishes many other hot-springs.

The chief islands belonging to Aliatic Turkey, situated
in the Archipelago, are Mitylene, Scio, Samos, Cos, and
Rhodes. Along the southern shores of Asia Minor are
some small islands, such as that of Cafel Rozlo, S.E. of Pa-
tira; but these are of no moment compared with Cyprus,
about 160 miles long and nearly 70 at its greatest breadth;
The chief cities of which are Nicofia and Famagutta.

Some geographers, in opposition to the testimony of trav-
ellers, have considered Egypt as a Turkish province;
whereas it was only occasionally tributary, and subject to
the military arithracy of the bey. Some of the maritime
Mahometan powers have likewise affiffed the Porte with
ships in time of war; but they cannot be regarded as sub-
ject to the Ottoman feapte.

TURKEY. Coinage, &c. of.

As the Turks, though aspir-
ing to a very ancient derivation, comprehending Tartars
and Moguls, (see TURK,) are merely a mixture of Sar-
mate or Slavi, Arabs and Greeks, which began to form a
nation in the fourteenth century, they seem to have issued
currences till they feized Constantinople in 1453; and their coins
resemble those of Persia and Arabia, having merely inscrip-
tions on both sides. Turkey keeps accounts in piafures,
commonly called grouch by the Turks, and by the English
dollars. Each piafure is divided into 40 paras, and each para
into 3 aspers. Sometimes, instead of these real coins, the
piafure is divided into 80 or 100 imaginary parts, called aspers,
or paras. Jux or jock is a sum of 100,000 real aspers.
A chief or purfe is 500 ditto. The gold coins of Turkey
are the fequin or chequen (see SEKON): the silver coins
are the two-dollar piece of 80 paras; the altmicchole of 60 paras;
the dollar or piafure of 40 paras; the zoletta or izelotta
of 30 paras; the roup of 10 paras; the hellick of 5 paras;
the para of 3 aspers; and the asper. The Turkish coins,
notwithstanding the regulations of 1780, when a single
piafure weighed 52 drachms, or 277 English grains, have
been gradually deteriorated; so that a piafure of the lately coined,
weighed and faiyed by the king's aflay-master of the Mint,
was reported to be as follows: weight 8 dwts. 6 grs., fine-
enfs 502. 6 dwts. worse than the English standard; hence
its fineness was 47 car. 2 grs. Turkish, and its value in
fcs. 13d. in the old round.
The Turkish cheque or pound, with which gold, filver,
diamonds and precious fones are weighed, is divided into
100 drachms, and the drachm into 16 kilotts or carats, or
4 grains. A cheque weighs 10 oz. or 5 dwts. 3 grs. true
weight, and a drachm 491 grs. ditto; so that 48 cheques
weigh 4 lbs. troy very nearly.
The cantaro, quintal or kintal contains 44 okes, or 100
rotoli; the oke, 4 yuflromes or cheques, or 400 drachms;
the rotolo, 176 drachms. A metecal is 1 f. drachm. The
kintal of cotton-yarn is 45 okes.

The cantaro weighs about 123 lbs. avoirdupois; the oke,
2 lbs. 13 oz.; the rotolo, 191 ounces; the cheque, 174
ounces avoirdupois.

Silks from Perfa are weighed by the batman of 6 okes,
or 2400 Turkifh drachms, or 161bs. 14 oz. avoirdupois:
from Brufa are weighed by the taffee of 610 Turkifh
drachms, or 4 lbs. 4 oz. 10 drs. avoirdupois.

The cheque of goats' wool is 800 Turkifh drachms,
or 5 lbs. 10 oz. avoirdupois; the cheque of optium 250 Turkifh
drachms, or 27 oz. 10 drs. avoirdupois.

Corn is measured by the quillot or killo, weighing, in wheat,
about 22 okes, or 60 lbs. avoirdupois; 4 killos make 1 forin:
8^1 killos answer nearly to 1 English quart. A killo
of rice is 10 okes.

Oil and other liquids are sold by the meter, or almad:
the meter weigh 8 okes, or 224 lbs. avoirdupois; and 8
almuds equal 11 English gallons.

The pic or pike is of two forts; the longest, called halbebi
or archim, with which silks and woollens are measured,
is 314 French lines, or 27-, English inches long; the other,
called endaffe, with which cotton goods and carpets are
measured, is 3 per 100 shorter. But, in the general course
of European trade, the pike is reckoned at 3ths of a French
yard.

The exchanges of Constantinople with the principal com-
mercial places in Europe are as follow: Constantinople

gives
Amsterdam 60 paras, more or less, for 1 florin current.
Genoa 23 paras, more or less, for 1 lira fuori banco.
Hamburgh 1 piafure, for 24 grotes Flemifh banco, more or
less.
Leghorn 145 paras, more or less, for 1 peseta of 8 reali.
London 18 piafures, more or less, for 1l. sterling.
Marfelles 1 piafure for 1 franc 45 centimes, more or less.
Naples 120 paras, more or less, for 1 ducat regno.
Paris 210 piafures, more or less, for 100 ecos of 3 livres,
or 300 francs.

Venice 36 paras, more or less, for 1 sequin of 22 lire
p lucki.

Vienna and Trieffe 50 paras, more or less, for a florin
current.

The exchanges between Constantinople and other trading
places, where Turkish money is used, are done at a premium
of 10 per cent. more or less, in favour of Constantinople.

Bills between Constantinople and the principal trading
places of Europe are commonly drawn at 31 days' flight;
but from one place, in Turkey, on another, at 11 days' flight.
Some European merchants pay their bills on the very day
on which they become due; and others take as many days
as are allowed in their respective countries.

Trieffe keeps accounts in florins or florins of 60 crowners;
also in lire of 20 foldi; the crowner being subdivided into
4 pfennings, and the foldo into 12 denari. These monies
of account are valued in Austrian currency, in Trieffe currency,
and in Valuta di Piazza: the first is chiefly used in foreign
exchanges, the second in wholesale trade, and the third in
retail business. A florin Austrian currency is worth 51/2
lire of Trieffe currency, or 5½ on lire di piazza. For the coins,
see VIEIIA.

Tripoli keeps accounts in piafures of 13 grimmelli, or 52
aspers: the grimmelin is valued at 6 sous Tournois, which
makes the piafure of Tripoli worth 31. 3d. Sterling. The
weight for gold and filver is called Meftad (which see):
50 of which are equal to a Venetian mark; so that 1 metad
weighs 7½ English grains. The cantaro weight contains
100 rotoli, each of 6 ounces, or 128 termini; the cantaro
3 12

answering
TU R
anfwerin to 168 lbs. peo lotile of Venice, or about 112 lbs. avoidupois. The corn measure, called calilfo, contains 20 tiber, and is equal to 4 ṣaṭa of Venice: so that 13 caf-
fin = 15 English quarters. The oil measure, called marrato, weighs 42 rotolli, or about 47 lbs. avoidupois. The pie, or
ell, is equal to 24 of Genoee palmi, or 214 English inches.
Kelly’s Univerfal Camill.

TURKEY, a town of the iflate of New Jefery; 13 miles
N.N.W. of Amboy.

TURKEY Creek, a river of South Carolina, which runs
into the Cangaree, N. lat. 34° 55’. W. long. 81° 35’.—
Also, a river of America, which runs into the Ohio, N. lat.
38° 32’. W. long. 85° 12’.

TURKEY Foot, a township of Pennfylvania, in Somerfeet
county, containing 975 inhabitants.

TURKEY Hill, a township of Illinois territory, in the
county of St. Clair, containing 1131 inhabitants.

TURKEY Point, a cape on the coaft of Maryland, at the
mouth of the Susquehanna, where it takes the name of Chifa-
peak. Here the British army landed in August 1777, as
they were advancing to Philadelphia; 16 miles S.E. of
Elkton.—Also, a cape on the N. coaft of lake Erie.

TURKEY River, a river of Louisiana, which runs into the
Missifippi, N. lat. 42° 10’. W. long. 91° 55’.

TURKEY Town, a town of the iflate of Georgia; 60 miles
N. of Oakoflee.

TURKEY, Meleagris, in Ornithology, a diftinct genus of
birds, of the order of the Gallinæe. For the diftinguifhing
characters and species, fee Meleagris.

Wild turkeys prefervc a famenefs of colouring; the tame
vaying; but the black approaching neareft to the original
flock. Of late a beautiful kind has been introduced into
England of a fwoy whitenes, finely contrafting with its
red head. The utual weight of the wild turkey is about
30 lbs.

The pinions of the males are strongly exprcfe by the
change of colours in the flegy fubflance of head and neck,
which alters to red, white, blue, and yellowifh, as they are
differently affecfed. One cock ferves many hens, who retire
to an obfufe place in order to fit, the cock being apt to
break the eggs. The females are very affectionate to their
young, and though the eggs addle, will almof perish with
hunger, unlefs they are removed, before they will quit the
neft.

Turkies delight much in the feeds of nettles, but thofe of
the purple fox-glove are fatal to them. They are ftrupid,
quarrelfome, and cowardly birds; they are swift runners,
but indifferent flyers; they love to perch on trees, and in a
wild fatc, get fo high as to be beyond the reach of the
mufket.

In the fafte of nature they go in flocks, even of five hun-
dred, and feed much on the small red acorns, frequenting the
fwavps of their native country, where they rooff, but at
fun-rifing repair to the dry woods in search of acorns and
berries. The flefh of the wild turkey is faid to be prefetable
to that of the tame, but redder.

Wild turkeys are now very rare in the inhabited parts of
America, but are found in numbers in the dillant and moft
ufrequently fots.

The Indians make a very elegant clothing of the feathers,
withfing the inner webs into a ftrong double thread of hemp,
or inner bark of the mulberry-tree, and working it like
matting; it appears rich and glosfly, and as fine as a filk
fcaf. They alfo make fans of the tail, and the Trench of
Louisiana were wont to make umbrellas by the junétion of
four of the tails.

Turkies are natives only of America, or the New World,
and of curfe unknown to the ancients: this is a point which
Mr. Pennant has eftabilifhed by an elaborate induction of
various particulars in the history of these birds; evincing
that they are natives neither of Europe, Asia, nor Africa.
The firft precise defcription of them is given by Oviedo, in
1525; they are also mentioned as natives of the main land
of the warmer parts of America, by Fernandez, physician to
Philip II. who wrote between the years 1555 and 1598: they
were alfo frequently seen, both in their wild and tame ifte, by
Dampier, in the province of Yucatan, now a part of
Mexico.

In North America they were oberved by the firft disco-
veryers. They were firft introduced into Europe from Mexico
or Yucatan, and imported into England, probably from Spain,
as early as the year 1524. Since that period they have been
ufefullly cultivated in this kingdom, fo that in the year
1585 they made a dift even in our rural fefs. But in
France they were fo rare, that the firft which was eaten in
that kingdom appeared at the nuptial feast of Charles IX.
in 1570. Phil. Trans. vol. lxxi. part i. p. 67, &c. See
POULTRY.

TURKEY-Berry Tree, in Botany. See Cordia.

TURKEY Company and Silk. See Company and Silk.

TURKEY Leather. (See MOROCCO Leather.) The pro-
ceffes for dyeing leather red and yellow, as prafticed in Tur-
key, with the directions for preparing and tanning the skins,
as communicated by Mr. Philippo, a native of Armenia, who
obtained 100l. and a gold medal from the Society for the
Encouragement of Arts, as a reward for the difcovery,
as follows.

1. Firft Preparation of the Skins, both for Red and Yellow
Leather, by drefling them in Lime.—Let the skins, dried with
the hair on, be firft laid to soak in clean water for three days;
then let them be then thrown over the flefh-fide, put into ftreath-
water for two days longer, and afterwards hung up to drain
half an hour. Let them now be broken on the flefh-fide,
lined in cold lime on the fame fide, and doubled together
with the grain-fide outward. In this ifte they muft be
hung up within-doors over a frame for five or fix days, till
the hair be loose; which muft then be taken off, and the
skins returned into the lime-pit for about three weeks. Take
them out, and let them be well worked flefh and grain, every
sixth or feverf day during that time; after which, let them be
washed ten times in clear water, changing the water at
each washing. They are next to be prepared in drench, as
below mentioned.

2. Second Preparation of the Skins for both the Red and Tel-
low Dyes by drenching.—After squeezing the water out of
the skins, put them into a mixture of bran and water, warm
as new milk, in the following proportions; viz. about three
pounds of bran for five skins, and water fufficient to make
the mixture moderately fluid, which will be about a gallon
to each pound of bran. In this drench let the skins lie three
days; at the end of which time they muft be well worked,
and afterwards returned into the drench two days longer.
They muft then be taken out and rubbed between the hands;
the water fqueezed from them, and the bran scraped off clear
from both fides of the skins. After this they muft be again
washed ten times in clear water, and the water fqueezed out
of them.

Thus far the preparatory procefs of all the skins, whether
intended to be dyed red or yellow, is the fame; but after-
wards thofe which are to be dyed red, must be treated as
follows.

3. Preparation in Honey and Bran of the Skins that are to
be dyed Red.—Mix one pound of honey with three pints of
lukewarm water, and flir them together till the honey is
diſsolved.
dissolved. Then add two double handfuls of bran; and taking four skins (for which the above quantity of the mixture will be sufficient), work them well in it one after another. Afterwards fold up each skin separately into a round form, with the flesh-side inwards; and lay them in an earthen pan, upon another pan; if in the summer, by the fire for each other; but in the winter, on the top of each other. Place the vessel in a flopping position, so that such part of the fluid as may spontaneously drain from the skins, may pass from them. An acid fermentation will then rife in the liquor, and the skins will swell considerably. In this state they must continue for seven or eight days; but the moisture that drains from them must be poured off once or twice a day, as occasion may require. After this a further preparation in salt is necessary; and which must be performed in the following manner.

4. Preparation in Salt of the Skins to be dyed Red.—After the skins have been fermented in the honey and bran, as above-mentioned, let them be taken out of that mixture on the eighth or ninth day, and well rubbed with dry common sea-falt, in the proportion of about half a pound to each skin; the salt must be well rubbed and worked with them. This will make them contract again, and part with a further confiderable quantity of moisture: which must be fqueezed out by drawing each skin separately through the hands. They must next be scraped clean on both sides from the bran, superfluous salt, and moisture that may adhere to them. After which dry salt must be fwered over the grain-side, and well rubbed in with the hand. They are then to be doubled, with the flesh-side outwards, lengthwise from neck to tail, and a little more dry salt must be thinly fwered over the flesh-side, and rubbed in; for the two last operations, about a pound and a half of salt will be sufficient for each skin. They must then be put, thus folded on each other, between two clean boards, placed floping, breadthwise; and a heavy weight laid on the upper board, in order gradually to press out what moisture they will thus part with. In this state of preffure, they must be continued two days or longer, till it is convenient to dye them, for which they will then be duly prepared.

5. Preparation of the Red Dye, in the proper Proportion for four Skins.—Part eight gallons of water into copper, with seven ounces of fhanen tied up in a lien bag. [fshanen is a drug much used by dyers in the East; and may easily be procured at any of the ports of Syria and Africa, in the Levant. It is the Eastern joined kali, called by botanists falicornia; and grows in great plenty in thofe and other parts of the East.] Light a fire under a copper; and when the water has boiled about a quarter of an hour, take out the bag of fhanen, and put into the boiling fluid or licivium, 19, two drachms of album; 2dly, two drachm pomegranate bark; 3dly, three quarters of an ounce of turmeric; 4thly, three ounces of cochineal; 5thly, two ounces of loof-fugar. Let the whole mixture boil about six minutes, then cover the fire, and take out a quart of liquor, putting it into a flat earthen pan; and when it is as cold as new milk, take one skin, folded lengthwise, the grain-side outwards, and dip it in the liquor, rubbing it gently with the hands. Then taking out the skin, hang it up to drain, and throw away the superfluous dye. Proceed in the fame manner with the remaining three skins; repeating the operation of each skin separately, eight times, fqueezing the skins by drawing them through the hands before each fresh dipping. Lay them now on one side of a large pan, set floping, to drain off as much of the moisture as will run from them without preffure, for about two hours, or till they are cold; then tan them as below directed.

6. Tanning the Red Skins.—Powder four ounces of the

beft white galls in a marble mortar, fifting it through a thin sieve. Mix the powder with about three quarts of water, and work the skins well in this mixture for half an hour or more, folding up the skins fourfold. Let them lie in this tan for 24 hours; when they must be worked again as before; then taken out, scraped clean on both fides from the first galls, and put into a liquidity of fresh galls and water. In this fresh mixture they must be again well worked for three quarters of an hour; then folded up as before, and left in the frefh tan for three days. On the fourth day they must be taken out, washed clean from the galls in seven or eight fresh quantities of water, and then hung up to dry.

7. Manner of dressing the Skins after they are tanned.—When the skins have been treated as above, and are very near dry, they should be fqueezed with the proper instrumet or fcraper on the fleshy-side, to reduce them to a proper degree of thickness. They are then to be laid on a smooth board, and glazed by rubbing them with a smooth glafs. After which they must be oiled, by rubbing them with olive-oil, by means of a linen rag, in the proportion of one ounce and a half of oil for four skins: they are then to be grained on a grain-board, breadthwise, breadthwise, and cornerwise, or from corner to corner.

8. Preparations with Galls, for the Skins to be dyed Yellow.—After the four skins are taken out of the drench or bran, and clean wafhed as before directed in the second article, they must be very well worked, half an hour or more, in a mixture of a pound and a half of the beet white galls, finely powdered, with two quarts of clear water. The skins are then to be separately doubled lengthwise, rolled up with the flesh-side outwards, laid in the mixture, and clofe preffed down on each other, in which state they must continue two whole days. On the third day let them be again worked in the tan; and afterwards scrape clean from the galls, with an ivory or brafs instrumet (for no iron must touch them). They must then be put into a fresh tan, made of two pounds of galls finely powdered, with about three quarts of water, and well worked therein fifteen times. After this they must be doubled, rolled up as before, and laid in the second tan for three days. On the third day, a quarter of a pound of white sea-falt must be worked into each skin; and the skins doubled up as before, and returned into the tan, till the day following, when they are to be taken out, and well wafhed fix times in cold water, and four times in water lukewarm. The water must be then well squeezed out, by laying the skins under preffure, for about an hour, between two boards, with a weight of about 200 or 300 pounds laid upon the uppermost board, when they will be ready for the dye.

9. Preparation of the Yellow Dye, in the proper Proportion for four Skins.—Mix fix ounces of caffiari gebara, or dgebara, or the berries of the Eastern rhammus, with the same quantity of album; and pound them together till they be fine, in a marble or brafs mortar, with a brafs pefle. [The caffiari gebara is the berries of an Eastern rhammus, or buckthorn-tree; and may be had at Aleppo, and other parts of the Levant, at a small price. The common Avignon or yellow berries may be fubstituted, but not with so good an effect; the caffiari gebara being a ftronger and brighter yellow dye, both for this use and all that of colouring paper-haungings, &c.] Then dividing the materials, thus powdered, into three equal parts of four ounces each, put one of those three parts into about a pint and half of water, in a china or earthen vessel, and flir the mixture together. Let the fluid stand to cool, till it will not fteal the hand. Then spreading one of the skins flat on a table, in a warm room, with the grain-side
side uppermoft, pour a fourth part of the tainting liquor, prepared as above directed, over the upper or grain-side, spreading it equally over the skin with the hand, and rubbing it well in. Afterwards do the like with the other three skins, for which the mixture first made will be sufficient.

This operation must be repeated twice more on each skin separately, with the remaining eight ounces of the powder of the berries and alum, with the above-mentioned due proportions of hot water, put to them as before directed.

The skins, when dyed, are to be hung up on a wooden frame, without being folded, with the grain-side outwards, about three quarters of an hour to drain; when they must be carried to a river or stream of running water, and well washed therein six times or more. After this they must be put under pressure for about an hour, till the water be well squeezed out; afterwards the skins must be hung up to dry in a warm room.

This being done, the skins are to be dried and grained as before directed for those dyed red; except the oiling, which must be omitted.

The processes for dressing and preparing the skins of lambs, sheep, goats, and other thin hides are various, according to the nature of the article. This branch of the manufacture supplies the large demand of white and dyed leather for gloves, the leather called morocco of different colours and qualities, used for coach-linings, book-binding, pocket-books, &c. This leather is applicable to a variety of other purposes. The white leather is not tanned, but finished by the mere processes of tawing; but the coloured leather receives a tanning, generally by fumach, indenpendent of the other materials. The preparation of each, or that in which the skin is thoroughly cleaned and reduced to the state of simple membrane, in which it is called felt, is essentially the same, whether for tawing or dyeing. It is thus performed at the best manufactories at Bermondsey, near London, a place long celebrated for all branches of the leather business.

By far the greater number of the skins are imported: if lambs, they are thus prepared; the skins are first soaked for a time in water, to cleanse them from any loose dirt and blood, and put upon the beam commonly used for the purpose, which is a half cylinder of wood covered with strong leather, and lashed upon the flesh-side with the femurcular blunt knife fibres with two handles, used in this operation. They are then hung up in considerable numbers in a small close room heated by flues, where they remain to putrefy for a given time. During this process a thick fitful flame works up to the surface of the skin, by which the regularity of the process is judged of; and the wool is loosened, so that it readily comes off with a slight pull. Each skin is then returned to the beam, the wool taken off and preferred, and all the flane worked off with the knife, and the rough edges pared away. The skin is then put into a pit filled with lime-water, and kept there from two to five weeks, according to the nature of the skin, which has the effect of checking the further putrefaction, and produces a very remarkable hardening and thickening of its substance, and probably also it detaches a further portion of the flane. The skin is again well worked upon the beam, and much of its substance pared down, and all inequalities smoothed with the knife. Much pains and judgment are required in these operations, on the one hand not to endanger the substance of the skin by the putrefaction (which if carried on too long would soon reduce it to an incohesive pulp), and on the other hand to work out every particle of the flane, of which the leaf, if retained, will prevent the skin from dressing well in the frequent processes, and from taking the dye uniformly and well. The skin is then again softened and freed from the lime by being thrown into a vat of bran and water, and kept there for some weeks in a state of gentle fermentation, being occasionally returned to the beam. All the thickening produced by the lime is thus removed, and the skin is now highly purified, and is a thin extensible white membrane, called in this state a pelt, and is fit for any subsequent operation of tawing or dyeing, or oil dressing, or shammaging.

The method of bringing kid and goat's skins to the state of pelt is nearly the same as for lambs, except that the liming is used before the hair is taken off, the hair being of but little importance, and only fold to the plaiters; but the lamb's wool, which is more valuable, would be injured by the lime. Kids'skins will take a longer time in tanning than lambs'.

If the pelts are to be tawed, they are put into a solution of alum and salt in warm water, in the proportion of three pounds of alum and four pounds of salt to every 120 middle-sized skins, and worked about therein till they have absorbed a sufficient quantity. This again gives the skin a remarkable degree of thicknees and toughness.

The skins are then taken out and washed in water, and then again put into a vat of bran and water and allowed to ferment for a time, till much of the alum and salt are got out; and the usual thickening produced by it is for the most part reduced. They are then taken to a lofty room with a stove in the middle, and stretched on hooks and kept there till fully dry. The skins are then converted into a tough, flexible, and quite white leather; but to give them a glossy finish, and to take off the harthness of feel still remaining, they are again soaked in water to extract more of the salt, and put into a large pail containing the yolks of eggs beat up with water. Here the skins are trodden for a long time, by which they are completely imbibe the substance of the egg, that the liquor above them is rendered almost perfectly limpid, after which they are hung up in a loft to dry, and finished by g loosening with a warm iron. There are other smaller manipulations, which need not be here mentioned.

The essential difference therefore between tanning and tawing is, that in the former the pelt is combined with tan and other vegetable matter, and in the latter with something that it imbibes from the alum and salt (possibly alumine), and which is never again extracted by the subsequent washing and browning.

The morocco leather prepared chiefly from sheep's skins and used for coach-linings, the best kind of book-binding, &c. is prepared by the following processes. The skin, cleaned and worked in the way already described, is taken from the lime-water, and the thickening thereby occasioned is brought down, not by bran liquor as in tawing, but by a bath of dogs' or pigeons' dung diffused in water, where it remains till sufficiently suppled, and till the lime is quite got out, and it becomes a perfectly white clean pelt. If intended to be dyed red, it is then fewed up very tight in the form of a sack, with the grain side outwards (the dye only being required on this side), and is immersed in a cochineal bath of a warmth juft equal to what the hand can support, and is worked about for a sufficient time till it is uniformly dyed, a procés which demands much skill and experience. The sack is then put into a large vat containing fumach infused in warm water, and kept for some hours till it is sufficiently tanned.

The skins intended to be blacked are merely fumached without any previous dyeing. After some further preparation, the colour of the fine red skins being finished with a weak
weak bath of saffron, the skins when dry are grained and polished in the following way. They are stretched very tight upon a smooth inclined board, and rubbed over with a little oil to imitate them. Those intended for black leather are previously rubbed over with an iron liquor, by means of a flint brush, which unites with the gallic acid of the umach, infamously strikes a deep and uniform black. They are then rubbed by hand with a ball of glass cut into a polygonal surface, with much manual labour, which polishes them and makes them very firm and compact.

Lastly, the graining or ribbed surface by which this kind of leather is distinguished, is given by rubbing the leather very strongly with a ball of box-wood, round the centre of which a number of small equi-distant parallel grooves are cut, forming an equal number of narrow ridges, the friction of which gives the leather the desired inequality of surface.

The procés for the real morocco leather, as prepared from goat-skins at Fez and Tetuan, is thus described by M. Broussonet. The skins are first cleaned, the hair taken off, limed and reduced with bran, nearly in the way already described for the English morocco leather. After coming from the bran they are thrown into a seconf bath made of white fks, mixed with water, which is thereby rendered limy and fermentable. In this bath the skins remain four or five days, when they are thoroughly salted with ful-gen (or rock-salt) alone (and not with salt and alum), after which they are fit to receive the dye, which for the red is cochineal and alum, and for the yellow, pomegranate bark and alum. The skins are then tanned, dressed, fuppled with a little oil, and dried.

Much excellent leather of every kind is prepared in different parts of the Ruffian empire. The preparation of the fine Ruffia leather, so well known for its quality and for its peculiar smell, is described at large in Mr. Tooke's "View of the Ruffian Empire," to which we must refer the reader for the minuter particulars. In general it may be stated that the hides are first put into a weak alkaline ley to loosen the hair, and then scraped on a beam, then (if calves) are reduced by dogs' dung, and a four oatmeal drench, then tanned with great care and frequent handling. The bark ufed here is feldom oak, but, where it can be got, the bark of the black willow, or if this cannot be had, birch-bark. They are then dyed either red or black, thefe being the two colours the moft esteemed. For the red, the hide is first foaked in alum, and then dyed with Brazil wood. The black is given as usual with an iron liquor. The leather is then fmacd with birch-tar, which gives the peculiar smell so much prized (and which, when ufed for book-binding, has the valuable property of protecting the book from worms), and is finifhed by various other manipulations. The fleeced or barred surface is given to the leather by a very heavy iron cylinder round wound with riles. See VYFS.

A valuable faffion or dyed maroquin leather, almost equal to that of Turkey, is prepared largely at Atrafchan and other parts of Asiatic Ruffia. Only buck's* and goats' skins are ufed for this purpose. The favourable colours are red and yellow. The general method of preparing the peel is the fame as in this country for the dyed morocco leather, that is by lime, dogs' dung, and bran. Honey is also ufed after the braining. The honey is diffolved in warm water, and some of this liquor is poured on each skin spread out on wooden trays till it has imbibed the whole of the honey, after which it is set to ferment for about three days, and then falted in a strong brine and hung up to dry. The skin is then ready to receive the dye, which for red is made with cochineal and the fallafa ericoides, an alkaline plant grow-
Among these was the Turkman Ala-el-din, sultan of Iconium. Ala-el-din, advanced in life and harried by the Tartars of Genghis Khan, granted lands to the Turks under heretogrul, and even made their chief general of all his troops. Heretogrul proved himself deserving the confidence of the sultan, vanquished the Moguls, acquired still greater power and reputation, and transmitted his honours to his son Ofman, who received from Ala-el-din, successor of the former of that name, the Kofetan, drum, and horse-tails, which are symbols of command among all the Tartars. This Ofman, to distinguish the Turks, his followers, from the others, gave them the name of "Ofmanes," from which we have made Ottomans; which new name soon became familiar to the Greeks of Constantinople, from whom Ofman conquered a sufficient extent of territory to found a powerful kingdom. He soon bestowed on it that title, by assuming, in 1300, the dignity of sultan, which signifies absolute sovereign.

No one is ignorant in what manner his successors, the heirs of his ambition and activity, continued to aggrandize themselves at the expense of the Greeks; till, continually depriving them of whole provinces in Europe and Asia, they at length flung them up within the walls of Constantinople; and Mahomet II. son of Amurath, having taken that city in 1453, annihilated this branch of the Roman empire. The Turks, now finding themselves difengaged from the affairs of Europe, turned their ambitions arms against the southern provinces. Bagdad, subjugated by the Tartars, had been without caliphs for two hundred years, but a new power, established in Peria, had succeeded to a part of their domains; and another, formed in Egypt, so early as the tenth century, and subsisting, at that time, under the name of Mamlouks, had seizes on Syria.

The Turks determined to depose these two rivals. Bayazid, the son of Mahomet, executed a part of this plan, by taking Armenia from the Sodi of Peria, and Selim his son completed it, by the conquest of the Mamlouks. This sultan having drawn them near to Aleppo, in 1517, under pretext of defending their influence in the war with Peria, suddenly turned his arms against them, and took from them successively Syria and Egypt, whither he pur- sued them. From that time the Turks established themselves in that country; but they are not settled much among the villages. We rarely meet with any individuals of that nation, except at Cairo; there they exercise the arts, and occupy the religious and military employments. Formerly they also were advanced to posts under government, but, within the last thirty years, a tacit revolution has taken place, which, without taking from them the title, has deprived them of the reality of power. See Turk and Turkey.

Volney observes, that the language of the Turkmans is the same with that of the Turks, and their mode of life nearly similar to that of the Bedouin Arabs. Like them, they are pastoral, and consequently obliged to travel over immense tracts of land to procure subsistence for their numerous herds. But there is this difference, that the countries frequented by the Turkman being rich in pasturage, they can feed more cattle on them, and are therefore less disturbed than the Arabs of the desert. Each of their "ordus" (hence horda), or camps, acknowledges a chief whose power is not determined by fixed laws, but governed by custom and circumstances. It is rarely abused, because the society is compact, and the nature of their situation maintains sufficient equality among its members. Every man able to bear arms is anxious to carry them, since on his individual force depend both his personal safety, and the respect paid him by his companions. All their property consists in cattle, that is, camels, buffaloes, goats, and especially sheep. They live on milk, butter, and meat; which are in great abundance among them, and the surplus of which they sell in the towns and the neighbouring country, for they are almost able alone to supply the butcheries. In return, they take arms, clothes, money, and corn. Their women spin wool, and make carpets, the use of which is immemorial in these countries, and consequently indicates their manner of living to have been always the same. As for the men, their whole occupation consists in smoking, and looking after their flocks. Perpetually on horseback, with their lances on their shoulders, their crooked sabres by their sides, and their pill-boxes in their belts, they are expert horsemen and indefatigable folders. They have frequent differences with the Turks, who dread them; but as they are divided among themselves, and form separate camps, they do not assume that superiority which their combined forces would ensure them. The paladins of Aleppo and Damascus, which are the only parts of Syria they frequent, may be computed to contain about 30,000 wandering Turk- mans. A great number of these tribes past in summer, into Armenia and Caramania, where they find grazs in greater abundance, and return to their former quarters in the winter. The Turkmans are reputed Muffulmen, and generally bear the distinguishing mark, circumcision. But they trouble themselves very little about religion, and they have neither the ceremonies, nor the fanaticism of federate nations. As for their manners, to describe them accurately, it would be necessary to have lived among them. They have, however, the reputation of not being robbers, like the Arabs, though they are neither less generous, nor less hospitable than they; and when we consider that they live in plenty, without being rich, and are inured to war, and hardened by fatigue and danger, we may presume they are equally removed from the ignorance and servility of the pashas, and the corruption and selfishness of the inhabit- ants of the towns. See TRUCHEMENIANS.

TURLACH-MORE, i.e. the Great Turlach, in the county of Galway, Ireland, a kind of lake, formed by the expansion of the rivers Clare and Moyne, which is upwards of six miles in length, and two in breadth; but which in summer, from the water being carried off by subterranean paf- fages, becomes a beautiful and found sheep-walk.

TURLAH, a town of Hindoostan, in the circuit of Ciacole; 25 miles E. of Kiemey.

TURLOS, a small island in the gulf of Engia, near the N.E. point of the island of Engia.

TURLUPINADE, a term used chiefly among the French for a low jest or witticism. The occasion of the name is said to be derived from a famous comedian at Paris, called Turlupin; whose talent confined chiefly in raising a laugh by miserable puns and quibbles.

TURLUPINS, Turlupini, a denomination given to the brethren of the free spirit; whose external aspect and manners carried a very shocking air of lunacy and distraction. They called their sect the fraternity of the poor, and spread themselves over England and France. They are said by some to have had their name turlupines, quod ex tantum habitore loca, qua lapis esopstata erat. Thay attempted to settle themselves at Paris in 1372, but were a great part of them burnt, with their books; as is related by Gaglin and Du Tillet, in the life of Charles V.

TURMERIC, or Indian Saffron, in Botany. See Cur- cuma.

Turmeric, Curcuma, in the Materia Medica, a medi-
nal root, being the root of the curcuma longa of Linnaeus, used likewise by the dyers, to give a yellow colour.

It is externally greyish, and internally of a deep lively yellow or saffron colour, very hard, and not unlike, either in figure or size, to ginger.

It is brought chiefly from the East Indies, but it is common in the gardens of the Chinese, who use it as a fermentatory, and grows abundantly in Malacca, Java, and Balesa. In England it was first cultivated by Mr. P. Miller in 1759. It has been long officially known. That should be chosen which is big, new, refrinous, hard to break, and heavy.

Some people have mislakenly imagined, that there was a native red turmeric; their error was owing to this, that the yellow root, as it grows old, turns brown; and when pulverized, is reddish. It is much used by the dyers, &c. to dye their clothes. The Indians use it to dye their rice, and other foods, of a yellow colour: whence some call it Indian saffron.

Our dyers do not find that it gives fo ready a yellow as the luteola, or weld; nor can any of the mordants give it a sufficient degree of durability; common salt and ammoniacal muriate fix its colour fast, at the same time rendering it deeper; but it is admirable to brighten and heighten the red colours dyed with cochineal and vermilion; as scarlets, &c.

Turmeric has a slight aromatic, and not very agreeable smell; and a bitterish, slightly acrid, and somewhat warm taste. It readily gives out its active matter, both to aqueous and spirituous menstrua; communicating to the former its own deep yellow, and to the latter a fine yellowish-red tincture. Diluted with water, it yields a small quantity of a gold-coloured effential oil, of a moderately strong smell, and pungent taste: the remaining decoction, infusitated, leaves a bitterish, considerably saline mass. The impregnated extract from rectified spirit is moderately warm and bitter, and not a little nauseous. In the Eastern countries, this root, besides its use in colouring and seafoning their food, is much recommended as a medicine; being accounted one of the most effectual remedies in obstructions of the vificera and melenetery, which are there frequent; in uterine disorders, difficulties of urine, and affections of the kidneys. Among us it has also been employed by way of decoction, infusion, and powder as a depurative, leucon, astringent, and aperient; and efficaciously as one specific in the jaundice: the dose in subsance is from a ferialpe to a drachm; in decoction or infusion twice as much. It tinges the urine of a deep yellow colour. Lewis.

Although the use of this root has been highly commended, it is now very rarely employed. A plaster of turmeric, well bruised, top and roots, is thought to be good against the bite of the rattle-snake. See Phil. Trans. No. 479. p. 144.

Turmeric-Wafes, is the gum of the turmeric-root dissolved in water. The qualities and uses of it are much the same as those of the yellow-berry wath for water-painting; but it is a brighter and cooler yellow; for which purpose it should be dissolved in spirit of wine instead of water, by putting two ounces of proof-spirit, and one ounce of water, in a phial, with two drachms of powdered turmeric-root, shaking them well together, and letting them stand, with a repetition of the shaking, for three or four days.

Turmero, in Geography, a town of South America, in the government of Caraccas; 40 miles S.W. of Leon de Caraccas.

Turn, a town of Walachia, at the confluence of the Ailt and the Danube; 24 miles S. of Brancovan. Vol. XXXVI.

Turn is used for a circular motion; in which sense it coincides with revolution.

Turn, in a Clock or Watch-work, particularly denotes the revolution of a wheel or pinion.

In calculation, the number of turns which the pinion hath is obtained by common arithmetic; thus 5 60 (12, where the pinion, playing in a wheel of 60, moves round 12 times in one turn of the wheel. Now, by knowing the number of turns which any pinion hath in one turn of the wheel it works in, you may also find how many turns a wheel or pinion has at a greater distance; as the contrate-wheel, crown-wheel, &c. by multiplying together the quotients, and the number produced is the number of turns, as 5 35 (11 5 45 (9 in this example.

The first of these three numbers has 11 turns, the next 9, and the last 8. If you multiply 11 by 9, it produces 99; that is, in one turn of the wheel 55, there are 99 turns of the second pinion 5, or the wheel 40, which runs concentrical or on the same arbor with the second pinion 5. If you multiply 99 by the last quotient 8, it produces 792, which is the number of turns the third pinion 5 hath. See Clock-Work and Pinion.

Turn, in Mining, is a pit funk in some part of a drift. If the mine be deep, there are many of these turns one below another.

Turn-House. When a drift is driven across the country N. and S. to cut a lode, the miners make a right angle from their drift, and work on the lode itself; which, as it is in a contrary direction to their past drift, they call turning-house, in order to work on the course of the lode.

Turn, in the Manege, is a term commonly used in directing to change hands. See Change and Entier.

Turn, in the Sea Language. See Land Turn, Tack, and Turning.

Turn, or Tourn, is also used for the sheriffs court, kept twice a year in every hundred within his county, viz. a month after Easter, and within a month after Michaelmas.

From this court none are exempted but archbishops, bishops, earls, barons, religious men and women, and all such as have hundreds of their own to be kept.

It is a court of record in all things that pertain to it; and is also the king's feet through all the county, of which the sheriff is judge; this court being incident to his office. The attendance on it is called feeta regalis, or fait-royal.

It is called the sheriff's turn, because he takes a turn or circuit for this purpose through the shire, holding the fame in several places.

Turn in the Head, in Rural Economy, a disease in calves and young cattle, in which external objects would appear to turn round. The affection in this case seems to arise from some diffigated state of the brain, or parts about it.

In the cure, bleeding is advised, in proportion to the fize and strength of the animal; after which a powder, compose of camphor, valerian, nitre, and birthwort, in the quantity of a drachm of the firt to an ounce of each of the other ingredients, should be well powdered and mixed together, and then given at once in a pint of rofemey tea, repeating it as occasion may require.

By this means much advantage has been gained, it is said, in some infallences of this difeafe.

Turnado. See Tornado.

Turnagain Aim, in Geography, a branch of the north part of Cook's inlet, extending eall from Point Pef-ffion.
Tournament, or Tournament, a martial sport or exercise, which the ancient cavaliers used to perform, to shew their bravery and address.

The first tournaments were only contests on horseback, in which the cavaliers tilted at each other with canes in manner of lances; and were distinguished from jousts, which were courses or careers, accompanied with attacks and combats, with blunted lances and swords.

Others say it was a tournament when there was only one quadril or troop; and that where there were several to encounter each other, it was a joust; which fee. But it is certain that the two became confounded together in process of time; at least we find them so in authors.

The prince who published the tournament used to send a king at arms with a safe-conduct, and a fword, to all the princes, knights, &c. signifying that he intended a tournament and a clashing of swords, in the presence of ladies and damfels: which was the usual form of invitation.

The first engaged man against man, then troop against troop; and after the combat, the judges allotted the prize to the best cavalier, and the best friker of swords; who was, accordingly, conducted in pomp to the lady of the tournament; where, after thanking her very reverently, he saluted her, and likewise her two attendants.

The tournament made the principal diversion of the thirteenth and fourteenth centuries. Münster says, it was Henry the Fowler, duke of Saxony, and afterwards emperor, who died in 936, that first introduced them; but it appears from the Chronicle of Tours, that the true inventor of this famous sport, at least in France, was one Geoffrey, lord of Preuilly, about the year 1066.

It is difficult to fix the epocha of their institution, as many nations have laid claim to it. Richard relates, that at the interview of Charles the Bald, king of France, who succeeded to the throne in the year 946, and his brother Lewis of Germany, at Strasburg, the gentlemen of the retinue of the princes fought on horseback, to display their courage and skill.

Du-Cange says, that these sports were so peculiar to the French, that they were called confilitus Gallici, or French combats. To this purpose Matthew Paris, under the year 1179, says, "Henricus rex Anglorum junior mare tranfienis in confilitus Gallicis, et profuloribus exquisitis, triennium peregit, regiaue majeftate deponita, totus eft de rege tranfitus in militiam." In the Historia Byzantina tells us, that the Greeks and Latins borrowed the use of it from the Franks; and we find mention made of it in Cantaczenus, Gregorias, Befiarion, and others of the late Greek authors.

Initiatives of them occur among the English in the reign of king Stephen, about the year 1140; but they were not much in use till Richard's time, towards the year 1149. After which period these diversions were performed with extraordinary magnificence in the Tilt-yard, near St. James's, Smithfield, and other places. At last, however, they were found to be productive of bad effects, and the occasion of several fatal mishap; as in the infancy of Henry II. of France, and of the tilt exhibited at Chalons, which, from the numbers killed on both sides, was called the little war of Chalons. These and other inconveniences, resulting from these dangerous pastimes, gave the popes occasion to forbid them, and the princes of Europe gradually concurred in discouraging and suppressing them.

Budeus derives the word tournament from Trojana agmina; others from Trojamentum, quae ludus Troja. Menage deduces it from the Latin tornare, or the French tournier, because the combatants rode in rings and circles, and were obliged to make many turnings with their horses, as the laws of the game required.

M. Paris calls them in Latin hastiludia; Neubrigensis, meditations militares; others, gladiature; others, decusiones latici, &c.

It is natural, however, to conclude ex vi termini, that although the sport itself may owe its rise to the Trojan game, yet that its name is of French extraction, and not only given with great propriety, but seems to be a tacit agreement of its superior antiquity among that people, whose historians affect that it was first known in France. BERGER'S Art of Horsemanship, vol. i. p. 104, &c.

Pope Eugenius II. excommunicated those who went to tournaments, and forbade them burial in holy ground. King Henry II. of France died of a wound received at a tournament. One Chiaoux, who had affilied at a tournament under Charles VIII. said very wisely, "If it be in earnest, it is too little; if in jest, too much."

It is to the exercice of tournaments that we owe the first use of armories, of which the name blazonry, the form of the escutcheons, the colours, principal figures, the mantlings, labels, supporters, &c. are undeniable evidences.

In Germany it was an anciently a custom to hold a solemn tournament every three years, to serve as a proof of nobility. For the gentleman who had affilied at two was sufficiently blazoned and published; i.e. he was acknowledged noble, and bore two trumpets, by way of crée, on his tournament caque. Those who had not been in any tournaments had no arms, though they were gentlemen.

TURNAU, in Geography, a town of Bohemia, in the circle of Bohlem; 14 miles N.E. of Jung-Bunzel. N. lat. 53° 32'. E. long. 15° 11'.

TURNDORF, a town of Bavaria; 21 miles N.N.W. of Amberg.

TURNEBUS, Adrian, in Biography, a learned critic and scholar, was born at Andeli, in Normandy, in the year 1512, educated at Paris, and intimately acquainted with every branch of classical literature. After having been employed for some time in teaching the classics at Toulon, he became, in 1547, a professor of Greek at Paris, in which station he was very popular. He also superintended the royal press for Greek books, which he declined on being appointed professor-royal of Greek in 1555. In his manners, which were mild and condescending, meek and modest, he differed, as we regret to observe, from many eminent scholars; so that Henry Stephens pronounces this eulogy upon him,

"Hic placuit cunctis, quod fibi non placuit."

His fame spread through Italy, Spain, Germany, and England; from which several countries he was honored with many lucrative propostals, which he declined, though at home his income was fcanty. He closed his life at Paris in 1565, at the age of 53 years, and his remains were privately interred in the cemetery of poor scholars, at Montaigu-college. Catholics and Protestant, claiming him respectively as one of their own body, concurred in their testimonies to his learning and character. His works conftit of "Annotations upon Cicero, Varro, Thucydides, and Plato;" "Writings against Ramus;" "Translations from Aristotle, Theophrastus, Plutarch, Plato, and other Authors;' "Poemes, Latin and Greek;" "Treatises on particular Subjects;' and "Adversaria; or, Miscellaneous Remarks on Writers," which latter was printed at Paris in 1 vol. fol. 1580. Of his versions, Huet says, that they posseff every quality necessary for perfect transalations; as he understood Greek thoroughly, and turned it into elegant Latin, without deviating from his author, and his style was clear and agreeable. His works were

TURNEF, Island, in Geography, an island in the bay of Honduras, about 20 miles long, and 10 broad, abounding in cocoa-nut trees, and much frequented by fishermen. \( \text{N. lat. 17° 16'.} \) W. long. 89° 20'.

TURNEP, in Botany, &c. See BRASSICA and TURNIP.

TURNER, William, in Biography, one of the fathers of English botany as well as of the English Protestant church, was born at Morpeth in Northumberland, probably about the year 1520. He was educated at Pembroke college, Cambridge, under the patronage of sir Thomas Wentworth, and about the year 1538 had already distinguished himself for science and learning, being justly dissatisfied with the little real information he could obtain from those about him. Natural philosophy, medicine, and botany, chiefly engaged his attention at this time, but the great questions involving the vital interests of religious truth and liberty, having been stirred up, he devoted himself also to their examination, and, hazard the danger and obloquy incident, more or less, in every age and country, to the honest prosecution of such enquiries. Turner, like many others in England, at this period, united the characters of a physician and a divine. He became an itinerant preacher, of so zealous a character that the infamous bishop Gardiner threw him into prison; from whence he was, after a long time, released, we are not informed by what means, and became a voluntary exile from his native land. He resided on the continent with many other English refugees, principally at Cologne, and Bafle, till the death of Henry VIII. During this interval, Turner travelled into Switzerland and Italy, where he contracted a friendship with many distinguished botanists and physician, especially the great Conrad Gesner of Zurich, and professor Ghini of Bologna, the founder of the physic-garden, and of the botanical chair, in that university, and the preceptor of Casparinus and Anguillara. At Ferrara Turner received the degree of doctor of physic, which was confirmed to him at Oxford, when he returned to England on the accession of Edward VI. He was made physician to the Protector Somerset, and his ecclesiastical merits were still more amply rewarded, by a prebend of York, a canonry of Windsor, and the deanship of Wells. He had deferred this preferment by several publications in defence of Protestantism, which very caufe, however, obliged him to fly from the persecutions of the bloody Mary, during whose whole reign Dr. Turner remained abroad. The accession of Elizabeth restored him to his liberty and native soil, as well as to all his ecclesiastical benefits. The rest of his life was devoted to his clerical duties, and his botanical amusements; two pursuits which in many honours and good men have "gone very lovingly together," to their mutual advantage, and honor. He resided at Wells, and another at Kew, and appears to have divided his time between his deanship, and his residence in Cruchted Friars, London. Dr. Pulleyne thinks, from Turner's frequent mention of the plants of Purbeck, and Portland, that he had some intimate connections in Dorsetshire. This worthy man died July 7, 1568, apparently at no very advanced age, leaving several children. "His son Peter was educated to physic, travelled, and took degrees abroad; was incorporated doctor at Cambridge, and at Oxford, and died, aged 72, in 1614, but does not seem to have inherited his father's turn for botany." Turner's earliest botanical work is said to have been printed at Cologne in 1544, in octavo, under the title of História de natura herbarum, Jedediah, et nostre vallata. But this is mentioned by Bumaldis, or rather Ovidius Montalbanus, only, in his Bibliotheca Botanica, Segnière's edition, p. 18, without notice of any other publication of our author; nor does it appear to be known to English collectors, any more than the following. "Names of Herbes in Greek, Latin, English, Dutch, and French," printed at London, 1548, in 12mo., by the same writer.

The chief publication of Dr. Turner is his well-known Herbal, in small folio, black letter, with wooden cuts, of which the first part was originally printed at London in 1551, and is now, on account of its rarity, much valued by collectors. The second part appeared at Cologne in 1562, accompanied by a reproof of the first. In 1568 these first and second parts were reprinted at the same place, with a new title page, a dedication to queen Elizabeth, from which many of the above particulars of the author's life are taken, and the addition of a third part of the same work. To the whole are subjoined "A booke of the natures and properties as well of the bates in England as of other bates in Germany and Italy, as may necessary for all fuch persons that are either sickes or heal'd without the helpe of natural bates:" and "A moft excellent and perfecte homely apothecarye or homely phyfick booke, for all the grebes and defeases of the body, translated out of the Almaine speche into English, by Iohn Hollybusch." For this last saient production Turner is, perhaps, not responsible. The Herbal is arranged alphabetically, and is more original and practical, than the more popular and celebrated publications of Lyte, Gerarde, or even Parkinson. The object of the author was to determine the plants of the ancients, and to record their reputed virtues. But this is accomplished with more caution and discretion than are common to most of his contemporaries, and with far less dogmatical confidence than Fabius Columba subfrequently affirmed. The third part, dedicated to the company of surgeons, profiles more especially to treat of medical plants not known to the ancients. The author apologizes in these terms for its imperfections. "For surely being so much vexed with sickness, and occupied with preaching and the study of divinity and exercise of discipline, I have had but small leasure to write Herball." This dedication is dated "at Welles 1564." The wooden cuts of all the three parts of Turner's Herbal are taken from those of Tuchhis, and at first sight appear to be the very same blocks as those used in the octavo edition of the latter author, printed at Lyons, in 1595. A careful inspection however will easily detect minute differences; and we especially observe slight damages in Turner's figures, not occurring in this later impression, which decisively prove it to have been printed from more recent cuts. Haller gives our author credit for having first figured the true Microc, and the Rubus Cotinus; fec. part 24, 52 and 115. Under the former he describes various species of Medicago, distinguishing their different seed-sheels; and of the latter exhibits a sufficiently expressive delineation, with a correct, though brief, history.

Turner ranks moreover among our earliest British zoologicals. He published at Cologne, in 1544, an octavo of ten pages, entitled Avium praecipuarum, quarum apud Plinium et Aristotelen mentio est, historia. Conrad Gesner, to whose museon he repeatedly contributed, after his settlement in England, speaks of him as eminently deserving of praise in the department of ornithology; and Merret in his Pinax mentions the above little book, as great in authority, though small in bulk. Gesner has prefixed to the third volume of his own ponderous Historia Animalium, a letter of Dr. Turner's, dated Wissenburg, Nov. 1557, in which the various kinds
kinds of Flipes known in England, amounting to more than fifty, are briefly distinguished, with their Latin and English names. At the conclusion of the dedication of his Herbal to the queen he promises a book of the names and natures of Flipes that are within her majesty’s dominions, if he might have rest and quietness in his old age, and defence from his enemies, “which,” says he, “have more than thee eight years continually troubled me very much, and holden me from my book.” He speaks here also of nicknames, as an impediment to his labours. His work upon bathe is marked with the fame originality of thought, and practical observation, as his botanical and zoological writings. Turner wrote also on the “Wines commonly used in England,” and on the “Nature and Virtue of Treacle.” His numerous treatises on controversial divinity, published and unpublished, were chiefly in defence of the Reformation; but his most valuable undertaking of this kind we presume to have been his collaboration of the translation of the Bible, with Hebrew, Greek, and Latin copies, in consequence of which he found occasion to correct it in many places. How far his corrections were turned to advantage by the translators in James I.’s time, we are not informed.

Dr. Pulteney observes, that “he procured to be printed at Antwerp, a new and corrected edition of the Hierofia Gentis noflra. f. Angles, written by William of Newburgh, from a manuscript he found in the library of Wells;” but he complains of the printer, for omitting his preface as well as other communications. Turner translated several works from the Latin, particularly “The Comparison of the Old Learning and the new;” written by Urbanus Regius; printed at Southwark in 1537, 8vo.; and again in 1538 and 1548. We regret having never met with this book, as the subject promises much; and in the hands of Turner, or any man like him, who dared to think for himself, and whose judgment was regulated by prudence and learning, it could not but be valuable and instructive.—Turner’s Herbal.


Turner, William, a fellow student with Purcell and Dr. Tudway, among the second set of chapel-children under Dr. Blow, was sworn in gentleman of the royal chapel in 1669, as a counter-tenor singer, his voice fettling to that pitch; a circumstance which so seldom happens, naturally, that if it be cultivated, the possessor is sure of employment: and, in consequence of its utility, soon after his reception into the chapel royal, he was appointed vice-choral in the cathedral of St. Paul’s, and a lay-vicar of the collegiate church of St. Peter, Westminster. In 1666, he was admitted to the degree of doctor in music at Cambridge.

Dr. Turner arrived at the great age of eighty-eight, and dying in 1740, was buried in the cloister of Westminster Abbey, in the grave with his wife; who, being nearly of the same age, died but four days before him, after living together with great harmony of disposition, and felicity, near seventy years.

In many of our cathedral books there is an anthem, “I will always give thanks,” which is called the club-anthem, on account of its having been composed by three masters in conjunction; but not, as has been said, by Dr. Boyce and others, “as a memorial of the strict friendship that subsisted between them;” for, according to Dr. Tudway, who remembered the transaction, and records it with the anthem in the Mus. Collect. vol. iii. “the anthem was composed by order of Charles II. at a very short notice, on account of a victory at sea over the Dutch, the news of which arrived on Saturday, and the king willing to have the anthem performed the next day, and none of the masters choosing to undertake it, three of the children of the chapel, Humphrey, Blow, and Turner, performed the tale.”

There are two whole services, and several anthems, of Dr. Turner’s composition in Tudday’s collection, with an ode for the solemnity of St. Cecilia’s day, 1697, accompanied with violins and trumpets. To this there is a long symphony or overture, consisting of two movements, the second of which is in triple time, upon a ground, seemingly in imitation of Purcell, as the first movement is of Lulli. After this production, is inflected his anthem, “The King shall rejoice,” which is more in the style of a secular ode, than a composition for the church. The divisions, light and common in the last century, are now become extremely old-fashioned.


Gen. Ch. Col. Perianth inferior, double; the outermost of two combined, oblong, permanent leaves; inner of one leaf, funnel-shaped, deciduous; tube oblong, erect, cylin- drical, slightly angular; limb erect, in five deep lanceolate segments, the length of the tube. Cor. Petals five, invariably heart-shaped, pointed, flat, moderately spreading; claws narrow, inserted into the tube of the calyx. Stam. Filaments five, oval-shaped, shorter than the corolla, inserted into the tube of the calyx; anthers pointed, erect. Pfl. German superior, conical; styles three, thread-shaped, the length of the flanes; stigmas in many capsillary divisions. Peric. Capsule ovate, of one cell and three valves. Receptacles linear, attached lengthwise to the valves. Seeds numerous, oblong, obtuse, dotted, each furnished with an oblong, membranous, lateral tunic.

Eff. Ch. Outer calyx of two permanent leaves; inner funnel-shaped, five-cleft, deciduous. Petals five, inserted into the calyx. Stigmas many-cleft. Capsule superior, of one cell, and three valves. Seeds numerous, each with a lateral tunic.

Of this well-marked genus, which we presume to belong to Jaffret’s Tiliacea rather than to any other of his orders, Linneas has described but four species, to which Willde- now has added five from Aublet and Jacquin. We are en- cabled to furnish three new species from the Linneas herb. Aublet’s Piriqueta differs from the rest in having in five fylles, a point of no generic importance in the present case. All the species are found within the tropics, in South America, or the West Indies; none in the East Indies, nor in Europe. Their fylles are either shrubby or herbaceous. Leaves alternate, villos, simple, and mostly undivided, though crenate or serrated. Pubescence rather silky. Flowers yellow, falked, axillary, or occasionally raceme; their falks in some instances combined with those of the leaves. Outer calyx wanting in some of the species.

TURNERA.

β. T. umifolia; Mill. Illust. t. 14. (T. angustifolia; Curt. Mag. t. 281. T. fruticosa, folio longiore et mucronato; Mart. Cent. t. 49. f. 2. T. n. 1; Mill. Ic. 179. t. 266. Fig. curiosissimo folio, folio latiusculo vaficulatis trigonolis; Sloane Jam. v. 1. 202. t. 127. f. 4, 5.)

Flowers sejile on the footstalks. Leaves ovato-lanceolate, acute, coarsely serrated, with two glands at the base. Outer calyx ovato-lanceolate, notched.—Native of the red hills, and other places, in Jamaica; cultivated by Miller, and frequently seen in our flowers, especially the narrow-leaved variety, β, flowering from June to November. The calyx is bristly, but soft, or partly herbaceous, leaving a few years only, several feet high, with roundish, wavy, downy branches, leafy at the ends. *Leaves* ovate, or lanceolate, varying in length from two to three inches, and in breadth from half an inch to above an inch, unequally and bluntly serrated, strongly ribbed and veined, soft and downy on both sides, felted when bristly. Footstalks half an inch or an inch long, bearing two peltate glands near the top. Flowers large, bright yellow, short-lived, solitary, on the footstalks of few of the upper leaves, close to the leaf itself. *Outer calyx* of two ovato-lanceolate, strongly notched or serrated, permanent leaves, refembling the proper foliage; *inner tube*, bulbous, silky, yellowish, in five lanceolate, entire, deciduous segments, shorter than the corolla. We can scarcely think there is any specific difference between the broad and the narrow-leaved varieties. Millenow's β and γ are precisely the same plant. He, like Linnaeus, erroneously refers Sloane's *fynonym* to the broad-leaved variety, though Martyn had previously, like Miller, considered it as belonging to our β. His figure, in fact, represents that intermediate form of leaf which most usually occurs.

2. T. stipulata. Aawl-shaped Turnera.—Flowers sejile on the footstalks. Leaves ovate, acute, coarsely serrated, with two glands at the base. Outer calyx awl-shaped, entire.—Gathered in New Granada by Mutis, whose specimen was very inaccurately referred by Linneaus to *T. umifolia*. The leaves are ovate, not much above an inch in length, very downy and hoary, like the footstalks and branches. *Flowers* like-wise smaller than those of *umifolia*; their petals, in the dried specimen at leaf, nearly white, with a purple radiating spot on the disk. *Calyx* clothed with dense silky bristles; the leaves of the outer one very narrow, awl-shaped, channelled, and quite entire, affording a decisive specific character. *Capitule* the size of a pea, clothed with long silky bristles. The peltate glands, on the edge of the leaf itself, are very large and conspicuous in this species.

3. T. obtusifolia. Blunt-leaved Turnera.—Flowers sejile on the footstalks. Leaves obovate, obtuse, coarsely cre- nate, with two glands at the base. Outer calyx linear-lanceolate, flat, entire.—Native of Brazil. Communicated to the younger Linneaus by Thouin, probably from Com- meron's collection. This is very clearly distinguishable from the two former by the broad, obtuse leaves, finely hairy, one inch and a half long, and one inch in breadth; wedge-shaped at the base; broadly and bluntly crenate. The leaves of *calyx* are broader, flatter, and rather shorter, than in the leaf, measuring about half an inch. *Capitule* twice as large as in that species, coriaceous, densely covered with rigid bristles. *Seeds* club-shaped, beautifully reticulated, with intermediate depressions; their tunic nearly of their own length.

4. T. Pumilia. Nettle-leaved Dwarf Turnera. Linn. Sp. Pl. 387. Am. Acad. v. 5. 395. Wild. n. 2. Att. n. 2. Swartz Obs. 116. (Pumilia n. 1; Browne Jam. 188. Chamaecristus urticae folio, flore luteo; Sloane Jam. v. 1. 202. t. 127. f. 6.)—*Flowers* sejile on the footstalks. Leaves lanceolate, deeply serrated, without glands. Outer calyx linear, minute, hairy.—Native of dry sandy fields in Jamaica, flowering late in the year. *Swartz*. Rost annual, fibrous. *Stem* herbaceous, from one to three inches, or more, in height, simple or branched, erect or decumbent, round, hairy, leafy. *Leaves* about an inch long, so deeply serrated as to be almost pinnatifid, clothed with long-scattered hairs, but deftite of glands at the base. Flowers small, yellow, seldom expanded, solitary, sejile, at the base of each upper leaf, on its hairy footstalk. *Outer calyx* of two small, linear, upright leaves; *inner* in five linear hairy segments, pressed close to the corolla. *Petals* convolute, with long orange-coloured claws. *Seeds* roundish, compressed, corrugated. *Swartz*. The Linnzean specimen, from Browne, has no flowers, nor is it easy to say whence Linneaus took his account of the inflorescence, which, nevertheless, is confirmed by *Swartz*.

5. T. fibuloides. Sida-leaved Turnera. Linn. Mant. s. 32. Wild. n. 4.—Flower-stalks axillary. Outer calyx linear. Leaves nearly sejile, obovate-wedge-shaped, sharply serrated, downy and hoary on both sides, without glands.—Gathered in Brazil by Father Panzani, whose specimen was sent by Arduin to Linneaus. The calyx is bristly at the base, four or five inches high, erect, simple, round, leafy, clothed with hoary down, and long, soft, tanw hair. *Leaves* rather more than an inch long, covered on both sides with dense, entangled, somewhat hairy, soft, hoary pubescence; strongly and acutely serrated upwards; entire at the base, and tapering down into a very short hairy footstalk. *Flowers* axillary, nearly sejile, tanw, their *flalks* and *calyx* downy, and clothed with long, yellow, shining hairs. The specific character of Linneaus, *peduncula bifida*, seems to allude to the two linear or awl-shaped leaves of the outer calyx.

6. T. fistulifera. Brantley-limbed Turnera.—Flower-stalks axillary, partly combined with the footstalk. Outer calyx linear. Leaves obovate-wedge-shaped, deeply serrated or pinnatifid, very hairy on both sides, without glands.—Gathered by Commeron at Monte Video and Buenos Ayres. The size of the leaf. *Stem* bristly at the base, throwing up a few simple, wavy, nearly upright, hairy, leafy branches, from three to five inches high. *Leaves* more flaked, and much more deeply cut, than in *T. fibuloides*, being sometimes sharply pinnatifid; they are scarcely at all hoary or downy, but covered with long, silky, yellow hairs, such as are extremely copious on the branches, flalks, calyx, and capitule. *The flowers* are said to be of a tanw red. *Their calyx* is very long and linear. *Their flalks*, as far as we can judge, are connected, for about half their length, with the adjoining footstalks. This species is certainly near akin to the last, and the segments of its *leaves* are evidently variable. *We cannot, without spoiling our only specimen of *T. fistulifera*, determine whether its *flower-stalk* be really separate from the footstalk or not. What Linneaus in the *Manualia* terms *branched*, are what we have all along called, after his own example in the *Sida*, *Vegetabilibus*, *an outer calyx*; which is this part perhaps, as professor *Swartz* says, entirely wanting in the next species, though we must allow it to be there till more like *branched*.

ground in Jamaica. Sent by M. Richard, in 1774, to Kew
garden, where it flowered in the flore, from June to Oc-
tober. The root is annual, long and simple. Stems one or
more, subdivided, erect, from fix to twelve inches high,
round, leafy, hairy. Leaves on short flasks, spreading,
bluntly toothed or serrated, about an inch and half
long, clothed on both sides with minute flarly hairs; paler
below. Flowers small, yellow, on long slender hairy flarks.
swelling upwards, bent or jointed about the middle, where
are sometimes to be seen two minute bracteas, hardly to
be deemed an outer Ca/e. The proper calyx is hairy, in
two lancelate acute segments. Capsule somewhat hairy, pale.
Seeds buff-coloured, curved, elegantly impressed with
numerous rows of minute dots.

Vind. v. 3. 49. t. 94. Willd. n. 8. Ait. n. 4.—Flower-
flaks in a terminal cluster; the lower ones axillary, many
times longer than the footflaks. Outer calyx wanting.
Leaves ovate, bluntly serrated, downy.—The native
country of this species is not known, but we have little doubt
of its West Indian origin. Jacquin received its seeds with
the name of T. ciffoides, under which a species lies in the
Linnean herbarium. M. Thouin sent feeds to Kew in
1789, and we have what seems a garden specimen from him.
The root is annual. Herb much larger than the ciffoides
with a very hairy, slightly branched, stem. Leaves broadish-
oveate, two inches long, unequally serrated, clothed with
extremely soft, flary, depressed hairs. Footflaks brily,
almost an inch in length. Flowers small, dull or tawny
yellow, on very long and slender hairy flaks. Calyx hairy.
Capsule slightly hairy, each of its valves splitting into two.
Seeds pale, rough with minute points between the deprefed
dots.—The calyx in this and the lafl species does not anfwer
well to the idea of the genus, the tube, though prefent and
permanent, being very fhort, nor are there any traces of the
two outer leaves. Perhaps the latter had been left un the
generic character, which is sufficiently marked without
them.

291. t. 114. Willd. n. 9.—Flowerflaks in a terminal cluf-
ner, smooth. Outer calyx linear, entire, naked. Leaves
linear, smooth, ftrightly ferrated, with two glands at the
base.—Gathered by Aublet in the marfy meadows of Ti-
moctou in Guiana, flowering in April. Root fibrous, pro-
bably annual. Herb fflender, with a fmall, angular,
flabbly, branched stem. Leaves nearly ferially, two inches
long, much less deeply ferrated in Aublet’s specimens
than in his figure. Flowers small, yellow, on short ffloned partial flaks, collected, very few together,
into a fufier. Outer calyx permanent, glandular at the
bottom, rather longer than the inner, whose segments are, as
in all the species we have hitherto decribed, deciduous, the
permanent base being fhort, like that of T. racemofa. Ca-
sule very fmoth, of three undivided valves.

t. 113. f. 1. Willd. n. 3.—Flowerflaks axillary, very fhort.
Outer calyx linear-lanceolate, toothed, somewhat brilly.
Leaves nearly linear, toothed, very fmoth, almost fcelifer.
—Found by Aublet, in the moft mofly clefts of rocks
about the great water-falls of Sincmar in Guiana, flowering
in November. A rigid, fnder, branched shurb, about a
yard high, whose ftems are more or less covered with Jun-
germania. Leaves crowded about the ends of the branches,
nearly fcelifer, an inch and a half long, very narrow, taper-
ing at each end, slightly revolute, and arnifhed with half-
length teeth, and by no means ferrated, as in Aublet’s plate, from
which Wildenow took his specific definition. Flowers
small, yellow, nearly fcelifer, solitary in the cottoms of two
or three of the uppermoit leaves. Outer calyx toothed, or
rather ferrated, longer than the inner, whose segments are
lanceolate and entire; both are slightly clothed with clofe,
fiiky, white hairs. Petals oblong, jagged at the end.

290. t. 113. f. 2. Willd. n. 5.—Flowerflaks axillary, very
fhort. Outer calyx linear-lanceolate, toothed, somewhat
brilly. Leaves lanceolate, ferrated, very fmoth, almost fcelifer.—Oberved by Aublet, on the rocky banks of the
Sinimari river, above the great fall, flowering in December.
The natives call this shrub, as well as the former, Nepator-
from. The prefent appears to us a variety of the lafl, dif-
tering only in its more luxuriant growth, being feven or
eight feet high, with larger more dilated leaves, whose
length is two or three inches, their breadth above half an
inch, their veins far more numerous, and their margins
rather ferrated than toothed. These differences may arife
from a more favourable situation, or more fertile foil. In
the flowers or infor nfence there feems no difference what-
ever.

12. T. rubifca. Wrinkled Tornera. Willd. n. 6. (Piri-
queta villosa; Aul. Guian. 298. t. 117. Burcardia;
Schreb. Gen. 296, adopted from Scopoli; expunged at
T. 828, and placed in T. 578.)—Flowerflaks axillary,
many times longer than the footflaks. Outer calyx want-
ing. Leaves ovate, unequally cleft, wrinkled, downy.
Styles five.—Native of the fandy fhe-shores of Cayenne
and Guiana, flowering and bearing feed almost all the
year round. The root is annual. Stem fcelifer, about two
feet high, branched, leafy, villous. Leaves on very short flarks,
bluntifh, two or three inches long, rather epiftical, veiny,
rugged, clothed with reddifh hairs. Flowers fmall, yellow,
on long, fnder, hairy flaks. Capsule very like that of
T. racemofa, n. 8, which this species fo nearly refeembles in
many refpects, that, were it not for the five fyles, and the
more cleft and rugged leaves, we fhould be difposed to
unite them. We place this at the end, for future examina-
tion, not having seen a fpecimen to determine the quefion.

Tornera, in Gardening, compoffes a plant of the woody,
flowering, exotifc kind, for the flowe, the fpecies of which
cultivated is the elm-leaved Tornera (T. ulmifolia); which
has a shrubby stem, rifting eight or ten feet in height, and
a bright yellow flowcr. It is found in the Weft Indies.

There is a variety with narrow leaves, which alfo fimes
with a fhrubby stem, about eight or ten feet high, with
branches lefs fnder and fliff than in the broad-leaved fort:
the leaves narrow-lanceolate, hairy, near three inches long,
and about three quarters of an inch broad, terminating in
acute points, obtufely ferrate on their edges, and flanding
upon very fhort footflaks; when rubbed they emit a dif-
agreeable odour: the flowers are of a pale yellow: the
petals large and oval, with the tails or claws twifled, and
joining: they are not fo large or half fo bright a yellow as
in the true elm-leaved fort. This is a native of Jamaica.

Culture.—Both of these plants are eafily raised from feed,
which fould be fown in the fpring, in pots, and plunged
in the bark-bed, or any other hot-bed, under glaffes; and
when the plants are come up two or three inches in height,
they fhould be planted separately in small pots, plunging
them in the bark-bed of the flowe, to forward them a little
in growth: they may afterwards be placed in any part of
the flowe, and be managed as other flowe exotifc plants.

They are alfo capable of being increafed by cuttings, planted
in pots or in hot beds, and forwarded to the height of eight
or ten feet. They afford a good variety among flowe-plants, but they
are feldom of long duration, as they moftly go off in the

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course of two or three years, being therefore rather of a biennial nature.

TUNESOLE, or Tunsoles, in Botany. See HELIOTRIPUM, and CROTON TINCTORIUM.

Some have translated tunsole by the English word sun-flower, which has led many to suppose that the great yellow sun-flower, which we keep in gardens, was the plant that afforded the tunsole colour: but this is a mistake; and it is to be observed, that the true tunsole plant, or heliophyllum tricoccum, is very common in the fields of France, especially about Montpellier, and in Germany, but does not grow wild with us in England.

The juice of the berries of the tunsole, rubbed upon paper or cloth, at first appears of a fresh lovely green, but presently changes into a kind of blueish purple. It is said that the common blue paper receives its colour from this juice. The fame cloth, afterwards wet in water, and wrung out, will turn the water into a claret colour; and it is to be observed, that the rags of cloth tinctured by this juice, and turned red by acids, are usually called tunsole in the druggists' shops, and employed for colouring wines and other liquors. M. Nisoffe, of the French Academy of Sciences, says, that the colouring juice is obtained, not from the berries, but from the tops of the plant, gathered in August, ground in mills, and then comminuted to the pres. The juice is exposed to the sun for an hour; the rags dipt in it, dried in the sun moistened by the vapour which arises during the baking of quicklime with urine, then dried again in the sun, and dipt again in the juice. The Dutch and others are said to prepare these rags and tunsole in the masts from other ingredients, of which archil is a principal one. Boyle's Works abr. vol. ii. p. 19.

Neumann's Chem. by Lewis, p. 433.

The Dutch process for making the blue called tunsole is as follows: Lichen, archil, or in case this last cannot be obtained, the greater moss of the oak, is dried, cleaned, and pulverized in a mill, resembing the oil-mill, and then dipt into a burea wire sieve, the interstices of which do not exceed one millimetre in width (\(\frac{1}{24}\) of an inch). The sifted powder is then thrown into a trough, and mixed with an alkali called vedas, which is nothing else but the cendres gravelles in powder. The proportion is one part by weight of the alkali, to two parts of the pulverized vegetable. This mixture is moistened with a small quantity of human urine; the urine of other animals does not contain a sufficient quantity of ammoniac. The mixture ferments, and is kept moist by successive additions of urine. As soon as the materials have become red, they are transferred into another trough, where they are again moistened with urine, and filled to renew the fermentation. Some days afterwards, the pate acquires a blue colour, in which it is carefully mixed with one-third of excellent potash well powdered; and with this new mixture certain trays are filled, which are one metre (39½ inches) deep, and eight decimetres (34½ inches) wide. When the fermentation which takes place for the third time has given the pate a considerably deep blue colour, chalk or powdered marble is added, and the whole is well and perfectly mixed. This last addition is made, not to improve the quality of the blue, but to add weight. It is merely an affair of profit. The blue thus prepared is put into iron moulds 32 centimetres long and 22 square at the end (14 inch by 8½ths of an inch). The moulded pieces are then placed upon deal planks, in well-aired lofts, to dry; after which they are packed in cakes for sale.

The Hollanders have a secret of this process; and in order to mislead, they have published, that the blue was

made with rags coloured by the plant tunsole; whence it has obtained its appellation. The English writers have used this denomination: but the dry-fellers, or dealers in drugs, distinguishing thee paltilles by the name of limus. We may derive much profit by carrying this discovery into practice.

The principal use of this plant is in dyeing: in order to which, the juice is infusified and prepared with calx and urine, into blue cakes; which are used also with flaxen, instead of smalt.

The lixivium of this plant in lime-water and urine, or in the volatile spirit of wine, turns marble blue. See Colouring of Marble.

TUNNESS, in Geography, a cape on the eait coast of the island of Hov. N. lat. 58° 47'. W. long. 3° 10'.

TURNETUM, in our old Law Books, a duty paid to the sheriff for holding his turn, or county-court.

TURNHOUT, in Geography, a town of France, in the department of the Two Nethes, built in the year 1272, by Henry IV. duke of Brabant. In the year 1545, after the peace of Munfler, Philip IV. gave it to his sister Mary, queen of Hungary, to enjoy during her life. In the year 1649, after the peace of Munfler, Philip IV. gave it to princes Amalia, widow of Frederick Henry of Nassau, from whom it came to the house of Orange. The quarter of Turnhout comprehends fifteen villages; 25 miles S.S.W. of Bois-le-Duc.

TURNING, in the Mechanical Arts, is the operation of shaping wood, metal, or other hard substances, into a round or oval figure, by the aid of a machine called a lathe; which see.

In turning, the work or substance to be operated upon is placed in the lathe, and made to revolve with a circular motion about a fixed right line as an axis of motion; and the exterior surface is worked to its intended figure by means of some kind of edged tool, which is presented to it and held fast down upon a fixed reft. The protuberant parts of the work, by its rotary motion, are carried against the cutting edge, and cut off, so as to reduce every part of the outside surface, to an equal distance from the axis of motion, and of course it will be of a circular figure.

The articles which admit of being turned to give them their figure, are all such as combine the three following properties: 1. That they may be supposed to have an imaginary right line or axis passing centrically through the whole length of the piece; 2. That all the sections which can be made by planes perpendicular to such axis shall be circular; and 3. That the centre of all such circles shall coincide with the axis or centre line.

It should be observed, that a piece of work may have two or more centre lines in different parts or in different directions; but it must in that case be formed or turned at two or more successive operations, because what can be done at once fixing in the lathe, must come within the above definition.

The work may be turned hollow, so as to make a cavity within side; or work may be turned on the outside, to give form to the external surface; and frequently work is turned both without and within; but in either case, the above definitions will apply.

Diodorus Siculus says, the inventor of the art of turning was a nephew of Daedalus, named Talus; and that the reputation which he acquired by this invention excited the jealousy of Daedalus, and induced him to put Talus secretly to death. Pliny ascribes it to Theodore of Samos, and mentions one Thericles, who rendered himself very famous by his dexterity in managing the lathe. With this instru-
ment, it is fuid, the ancients turned all forts and kinds of vases, many of which they enriched with figures and ornaments in baffle relievo. Thus Virgil says:

"Lenta quibus torno facili superadita vitis."

The Greek and Latin authors make frequent mention of the lathe, and Cicero calls the workmen who used it, *oficia*. It was a proverb among the ancients, to say a thing was formed in the lathe, to express its delicacy and juftnefs.

The art of turning is of considerable importance, as it contributes essentially to the perfection of many other arts. The architect uses it for many ornaments, both within and without highly finifhed houses. The mathematician, the astronomer, and the natural philosopher, have recourse to it, not only to embellish their instruments, but also to give them the necessary dimensions and precision: in short, it is an art absolutely necessary to the mechanic, the goldsmith, the watchmaker, the joiner, the fmith, and others.

As the operation of turning is to be performed by the aid of the lathe, the structure of that machine is the first thing to be considered. In our article Lathe, we have given a definition of the most perfect kind of lathe, made in iron, with a triangular bar; and in the article Rose-Engine, we have described a curious lathe for ornamental turning; but it is to be obferved, that a much more fimple machine will answer all the common purpofes of turning.

The essential properties of a lathe for outside work are, firft, that it shall have two points which will firmly fupport the work at each end, by penetrating into the ends of the work, and, at the fame time, allow it to turn freely round upon the points: there muft be a reft or fupport to hold the tool upon, and also fome means of turning the work round upon the points. A lathe to turn hollow or inside work will not admit of a point of fupport at each end of the piece, and therefore the work is firmly fixed to the extremity of a fpinde, which is called a mandrel; when the mandrel is turned round, the work revolves with it, and the tool can be applied at the end of the work, to excavate or turn it hollow withinfide, or to turn it on the outside, as required.

Lathes are made in a great variety of forms, and put in motion by different means: they are called centre lathes, where the work is fupported at both ends; and mandrel, fpinde, or chuck lathes, when the work is fixed at the projecting extremity of a fpinde.

From the different methods of putting them in motion, they are called pole lathes, and hand-wheel lathes, or foot-wheel lathes. For very powerful works, lathes are turned by horfes, fteam-engines, or water-wheels.

The lathes used by wood-turners are generally made of wood, in a fimple form, and are called bed lathes: the fame kind will serve for the common turning of iron or fteel, but the bed work in metal is always done in iron lathes, which are fometimes made with a triangular bar, and are called bar lathes, (fuch an one is defcribed in the article Lathe); fmall ones, for the ufe of watch-makers, are called turn-benches, and turns; but there is, in fact, no proper definition between thefe and the centre lathes, except in regard to size, and that they are made of iron and brass instead of wood.

The centre lathe is the moft fimple of all others. Two beams of wood are fixed horizontally upon legs, like a bench, and form what is called the bed. The two beams are fixed togeth'er, parallel to each other, and at a small distance afunder, fo as to leave a space or narrow groove between them, nearly the whole length of the bed. This groove is to receive the tenons at the lower ends of the *puppets*, which are short pofts riling perpendicularly from the bed, and firmly fixed thereto by means of crofs wedges, put through the tenons beneath the bed; for the tenons are of fufficient length to de fend quite through the groove in the bed, and project beneath fufficiently to receive the crofs wedges, which being driven in, draw the bases of the puppets or pofts so firmly down upon the surface of the bed, that they will fland firmly erect upon it; or by withdrawing the wedges, the puppets become loofe, and can be fixed in another part of the bed, in order that the diftance between the two puppets may be made to conform with the length of the piece of work to be turned. One of the puppets has a pin or *pike* of irôn fixed into it, and the other one has at the fame level the centre *ferron*, working through a nut fenten in the puppet: both the crew and pike have fharp points made of fteel, hardened and tempered, that they may not wear away. They muft be exactly oppofite, and in a line with each other. The piece of work, fuppofe for inftance it is a roller of wood, is fupported by its ends between the points of the pike and the ferron, that it may turn round freely. The *red* for the fupport of the tool is a rail or bar, extending from one puppet to the other; it lies in hooks, projecting from the faces of the puppets.

The work is put in motion by means of the *treadle*, which is worked by the turner’s foot; a *fling* or catgut is fenten to the treadle, and paffing two or three turns round the work, it is fenten to the end of an elfatic *pole*, fixed to the ceiling over the turner’s head.

The workman stands before his lathe, having one of his feet on the treadle to give it motion; he places a sharp *gouge* or *chiffel* on the ref, and approaches the edge of it gently to the piece of work; then prefing the treadle down by his foot, the *fling* turns the work round, and the chiffel or gouge being held ffirm upon the ref, and fo as to touch the wood, it will cut it to a circular form. When he has brought the treadle to the ground, he relaffes the weight of his foot, and the elfacity of the pole draws up the treadle, turning the work back again; during which retrograde motion, he withdraws the chiffel from the work, as it would not cut in this direction, though it might impede the motion of the wood, and would injure the edge of the tool. He muft perform his work gradually, without leaving ridges; and when he meets with a knot in the wood, he muft go on still more gently, otherwise he would be in danger both of flitting his work and breaking the edge of his tool. For finishing light work, a bow, fuch as is used for shooting arrows, is fenten by its middle over the lathe; the *fling* is then tied to the middle of the bow-tring, in lieu of the pole, and acts in the fame manner.

The common centre lathe is a very imperfect machine, when worked in this manner; yet its fimplicity is a great recommendation, especially among country workmen, who ufe it to make various forts of common articles of houfehold furniture in foft wood, as ftool and table legs, flair-cafe rails, &c.

In centre lathes, the work is sometimes put in motion by means of a large wheel, turned by one or more labourers; the wheel should be heavy, that its momentum may be fufficient to overcome any moderate obfacle in the work; and the frame in which it is mounted muft be of fufficient weight to fland fleady, and not be liable to move, by the exertions of the man turning it. An endles fline is ufed, to communicate the motion of the wheel to the work; it paffes round a groove in the circumference of the wheel, and after crossing, like a figure of 8, goes round a small pulley, fixed upon the work. By this means, when the great wheel is turned, it gives a rapid rotatory motion to the matter to be turned, and with a much greater power than can be obtained from the treadle, with the additional advantage of the work turning always the
the same way round, so that the turner has no need to take his tool off the work.

The centre lathe will turn any kind of work which will admit of being supported at both ends; and it is used by millwrights and iron-founders, for turning mill-shafts, axles, rollers, and other iron-work. For such purposes, the lathe must be made exceedingly strong, and with nuts and screws to fasten the paddlets down upon the bed, instead of wedges; the reft must be made in iron, with the requisite adjustments for placing it close to the work, at that part where it is required to be turned. To put the work in motion, the centre pin or point in one of the paddlets is made to project considerably, and has a pulley fitted upon it, so that it can turn freely round upon the pin by means of an endless band or ftrap, which communicates the motion from a great wheel. In these large lathes for iron-work, the wheel is commonly turned by horsies, or by a water-mill or steam-engine.

From the pulley a pin projects in a direction parallel to the centre pin, and a piece of iron, called a driver, is screwed or clamped fast upon the end of the piece of work, fo as to project from it sufficiently either by a piece of line which is fastened into the pulley: by this means, the motion of the pulley is communicated to the work. The tools employed for turning iron and other metals are different from those used for wood, as we shall afterwards describe.

The spindle or mandrel lathe will turn hollow or internal work, and is equally well adapted to turn centre work as the centre lathe. In Plate Turning, fig. 1, we have given a representation of one of these, which is on a very good construction, made by Mefiers, Holtzapfel and Deyerlien; it is put in motion by the foot, fo that the turner has both his hands at liberty to direct the tools. A A are upright legs, to support the bed B, which consists of two pieces or bars of cast-iron, put together, and leaving a small crack between them: C D is a cast-iron frame, which is fastened down upon the bed B, and supports the spindle or mandrel a b: E is the back puppet, which is used to support one end of a piece of work, as is shown in the figure at G, when the other end is fixed to the end of the mandrel, and turned round by it: the back puppet, E, has a cylindrical pin accurately fitted into it at the upper part, and the end of the pin is formed to a sharp conical point, proper to penetrate and support the end of the work: this point is called the back centre. A screw e is tapped into the puppet, fo as to press on the opposite end of the pin, and force it towards the work; and there is likewise a clamp screw, E, at the top, to bind or fasten the pin into its socket. The back puppet is fastened down upon the bed, by means of a tenon entering into the groove, through the bed B, and a screw defends from the tenon quite through the bed, and projects beneath it: upon this screw a nut g is tapped, and by turning it, the shoulder of the puppet E is drawn down firmly upon the bed; but when the nut is loosened, the puppet is drawn along the bed to place it at any required distance from the end of the spindle, according to the length of the piece of work G. It is necessary that the point of the back centre should in all cases be precisely in the centre line of the axis of motion of the spindle a b; and for this purpose, the bed must be made very straight, and flat on the upper surface; the groove through it should also be perfectly straight and parallel, and the tenon at the lower end of the back puppet must be exactly fitted to the groove: the frame of the mandrel must be so fixed on the bed, that the centre line of the mandrel will be exactly parallel to the bed, and to the groove in the bed.

Mandrels are mounted in different ways, but they are always made of steel at the parts where they are supported in the collars, which collars should be also made of steel, and hardened, so as to have little friction. The neck of a mandrel must be very accurately fitted into the collar, fo as to have no shake or looseness, at the same time that it can turn round quite freely.

The neck at one end projects beyond the collar, and the projecting part is formed to a screw, for the purpose of fixing the work to it. A variety of pieces, called chucks, are fitted upon this screw, and each chuck is adapted to hold a different piece of work: the chucks screw up against a shoulder on the end of the mandrel, and by the motion of turning round in the direction in which the lathe works, the chuck screws itself fast on against the shoulder; but if the lathe is stopped, and the chuck is turned in the opposite direction, it will unscrew and come off, and a different chuck may be put on. In some lathes, the neck of the mandrel is perforated, and cut with a line, with a female fcrew adapted to receive a male fcrew on the chuck: the effect is just the same as the above defcribed. The opposite end of the mandrel to that on which the chucks are screwed, must be supported either by a piece of line which is fastened into the pulley; or the mandrel is made with a point at one end; and the other end, which has the screw to fix the work to it, is formed with a neck, proper to run in the collar, and with a shoulder on the neck, to flop the neck from going through the collar. The mandrel represented in the drawing has a neck and collar at each end, for a purpose which will be explained. When the mandrel is made with a pointed end, the point must be received in the end of a screw tapped through the part D of the frame of the mandrel, just in the place of the end a of the mandrel. By turning this screw, the mandrel can be adjusted to run very correctly in length; and to prevent the screw from turning back when the lathe is in motion, a nut is placed on the screw, beyond the part d: this caufes such a pressure upon the threads of the screw, that it is in no danger of turning back, as it would otherwise do with rough work. The mandrel, by this means, runs very steadily and accurately in its bearings, and it is plain that any piece of work, which is firmly attached to the end of it by means of the screw before mentioned, may be turned by a tool held over the reft, in the same manner as if it were mounted between centres, but with the advantage that it be turned at the end, to make hollow work when required.

The mandrel is turned round by a band of catgut paffing round the pulley b, and also round the large foot-wheel H, which is made of cast-iron, and fixed on the end of the axis I. This axis is bent in the middle, as in the figure, to form a crank, which crank is united, by an iron link K, to the treadle L, on which the workman preffes his foot. This treadle is affixed by three rails to an axis M, on which the treadle moves. The wheel H is of considerable weight in the rim, and being fixed fast on the axis I, turns round with it: the momentum acquired by the wheel is the power that continues to turn the work while the crank and treadle are rising, and consequently while the workman exerts no power upon them.

When the crank has paffed the vertical position, and begins to descend, the workman preffes his foot upon the treadle, to give the wheel a sufficient impetus to continue its motion until it arrives at the same position again. The length of the iron link K, which connects the crank with the treads, must be such, that when the crank is at the lowest position, the board L of the treads, to which the link is hooked, fhould hang about two or three inches from the floor. To put the lathe in motion, the turner gives the wheel a small turn with his hands, till the crank rife to the highest, and

Vol. XXXVI.
paffles a little beyond it; then by a quick tread he brings the crank down again, putting the wheel in motion with a velocity that will carry it several revolutions: he must observe to begin his next tread just when the crank paffles the highest point, and then it will continue running the same way with a tolerable regular motion, if he be punctual in the periods of his treads. The foot-wheel, by means of the band, caufes the mandrel to revolve very rapidly, fo that it will perform its work very quick, and the workman muft acquire a habit of standing steady before his work, that he may not give his whole body a motion when his foot rides and falls with the tread.

The head of this lathe is fixed on the bed of the lathe by its foot, which is divided in the manner of a fork, to receive a clamp-bolt: this bolt paffles down through the lathe-bed, and fallens the reft at any place along the bed, by a nut & beneath. The groove in the foot is for the purpofe of allowing the reft to be moved to and from the centre of the work, to adjust it to the diameter of the work which is turning. The height of the reft is a matter of some importance in turning, and in some work it should be fixed higher than others; therefore the piece upon which the tool is laid, is made with a flank of the form of the letter T. This flank is a round pin, and is received into a socket in the foot of the reft, and can be held at any height by a clamp-screw. As the socket and flank are cylindrical, the edge of the T of the reft can be placed inclined to the axis of the work when turning cones, or other similar work, though the fame purpofe may be accomplished by the screw, which holds the foot of the reft down to the bed of the lathe, admitting the fork to fland in an oblique direction across the bed.

The wood-turner employs gouges of all fizes, and chiffels of different forms: the gouges are used in the firft infance to rough out and form the wood, as they cut very rapidly, because they can take a very strong chip, and the angles will not fllick in, as would be the cafe with the chiffels. The latter are used to smooth the work, and to reduce it exactly to shape and fize.

The blade of the turning-gouge is formed nearly half round to an edge, and the two extreme ends of this edge are a little flopped off, in the manner of an apple-fcoop, that the middle part of the edge may cut away the prominetites of the work; and it has no corners, which would catch and get falt in the rough wood. The hollow part is whetten upon a piece of Turkey-flone, made with a convex edge, for the purpofe; the outside is whetten upon a common flat Turkey-flone, taking care to turn the gouge round, that all parts of the convex edge may fuccellively be sharpened. In turning, the blade of the gouge muft be held confiderably inclined, by deprefling the handle (fee fig. 42.), fo that the bevil, or outside of the edge of the gouge, may come very nearly in the tangent to the circumference of the work, and the cutting edge be above the level of the centre. The turner holds the tool down firmly upon the reft, keeping it steady, by placing the long handle under his arm.

The turner's chiffels are mostly ground with a bevil on both the flat fides, fo that either fide may be indifferently applied to the work: they are ground up and sharpened on the oil-flone to a keen edge. In fome chiffels, the line of the edge is inclined to the direction of the blade, instead of being perpendicularly across it, as in the chiffels used by carpenters; in others, the edge is rounded to a femicircle, instead of being a straight line; and others are made with angular points, like spears. It is dificult to decribe the proper ufe of each particular tool, as the turner muft employ one or other, according to the particular part of the work which is to be executed. In using the chiffel, the reft is raised confiderably above the centre of the work, fo as to be nearly on a level with the top of it (fee fig. 43.), and the line of the cutting edge muft fland oblique to the axis of the cylinder, fo as to prevent either angle of the chiffel from running into the work. It is neccessary to traverse the chiffel gradually along the work, but not too far, otherwife it will leave a roughnefs on the surface.

The turning-tools should be fixed in long handles, and the turner holds them firmly down upon the reft, steadying them by placing the end of the handle under his arm.

The turner should be provided with a grindstone, and an oil or Turkey-flone to sharpen his tools; and he muft have callipers and gauges to ascerten the dimensions of his work. In order to fix the work in the lathe, he muft have a great affortment of chuckes. The chuckes for wood-turning are blocks of wood, each having a fcrew, by which it can be attached to the mandrel. The end of the chuck being turned true, and the shoulder of the screw upon the mandrel being also turned true, the chuck fixes fo tight to the fpindle, that it becomes as it were one piece with it. Most of the wood chuckes are bored out like a box, and the work is jambed into the cavity. There are other chuckes, which are only flat round boards, and the work is cemented or frewed againft them; but the generalty of chuckes are cylindrical blocks, with a cylindrical or conical hole turned in the end, like a box, into which the piece of wood to be turned is driven falt, fo as to be turned round with the mandrel.

The chuckes are generally hooped with iron, to prevent them from splitting. When centre-work is to be turned in a mandrel lathe, a chuck muft be frewed on the end of the mandrel, which terminates in a fharp conical point.

The lathe should be fixed in a place very well lighted; it should be immovable, and neither too high nor too low.

The puppets should neither be fo low as to oblige the workman to floop in order to fee his work properly, nor fo high, that the little chips, which he is continually cutting off, should come into his eyes.

The piece of wood to be turned fould be rounded, before it is put in the lathe, either with a small hatchet made for the purpofe, or with a plane or rafl, fixing it in a vice, and faving it down till it is every where almoft of an equal thicknefs, leaving it a little bigger than it is intended to be when finifhed off. Before putting it in the lathe, it is alfo neccessary to find the true centres of its two end facefces, fo that they shall be exactly opposite to each other, in order that, when the centre points of the puppets are applied to them, and the piece is put in motion, no one fide may project out more from the centre line than another. To find these two centres, lay the piece of wood to be turned upon a plank, open a pair of compafes to almoft half the thicknefs of the piece, lay one of the legs on the plank, and let the point of the other mark on one of the ends of the piece when laid flat on the plane with the plank, like a roller, from which plank the point of the compafes stands up at a given height above the plane on which the piece lies. Deferibe four marks or arcs on that end at equal diatances from each other round the circumference of the end, by laying the piece fuccellively on four different fides, which arcs intersecting one another, the-point within the interfections will be the centre of the end. In the fame manner, the centre of the other end muft be found.

After finding the two centres, make a small hole at each of them, into which infert the centre points of the back centre and the mandrel, and frew up the back centre; to fix the
the piece so firmly as not to be shaken out, and yet loose enough to turn round without difficulty.

This is the manner of fixing the work when it is to be turned between centres; but if it is required to be hollowed out, the back puppet is removed, and the work must be fixed in a chuck at the extremity of the mandrel. For this purpose, a chuck is selected which has a hole in it nearly the size of the piece of wood, the diameter of which being taken in the callipers (fig. 35.), the chuck is screwed to the mandrel: the reft is fixed in a convenient position, and the hole in the chuck turned out by a proper tool to the size measured by the callipers: the hole should be rather conical, and the wood, being rapped to the fame figure, is driven in half by a hammer. By turning the mandrel slowly round, it will be seen if the wood is fixed straight in a line with the mandrel, and if not, a blow or two of the hammer, properly directed, will reftify it.

If the piece of wood is not very long, the chuck will be sufficient to hold it firm whilst it is turned; but if it is not, then a small central hole must be made in the extreme end, and into that point of the chuck, that part which must be inserted to steady the work, until the rough part of the turning is done, and then it may be removed; but it is much more convenient to turn without the back centre, and therefore the turner fits the chuck to the wood with care, so that it will fix fast in the chuck.

The work being thus chucked, or fixed in the lathe, the reft is set, so that its edge is close to that part of the work which is required to be turned, and the top of the reft being raised considerably above the level of the centre of the work, it is there ferewed fast.

The turner now puts the lathe in motion by treading with his foot, and takes a gouge, of a proper size, in his right-hand, and holds it by the handle a little inclined, keeping the back of the hand lowermost: he grasps the blade of the tool with his left-hand, the back of which is to be turned upwards, and he holds it as near the end as possible on the front side of the reft; then leaning the gouge on the reft, he is to present the edge of it a little higher than the horizontal diameter of the piece, so as to form a kind of tangent to its circumference: see fig. 42. This is the best position for cutting, and the tool must be held very firmly, to prevent the edge being depressed by the motion of the work, for if it does, it will take hold too deep, and tear the work. The gouge is applied first to one end of the work, and gradually advanced to the other, turning the work true all the way, and reducing it till the callipers (fig. 36.) determine it to be near the intended diameter.

The chiflel is next employed to smooth the cylinder: its handle is held in the right-hand, whilst the left grasps the blade, and keeps it steady upon the reft, holding the edge a little inclined over the work, as in fig. 41; so that one side of the flat part of the blade lies on the reft, and the other side is elevated, that the point of the blade, and consequently the line of the edge, is not horizontal, but inclined thereto, so that one corner of the edge of the chiflel is elevated above the work: then the bottom of the edge of the chiflel, or near the bottom, cuts away a shaving from the work, and this is the only way in which it will cut; for if the edge of the chiflel is held parallel to the axis of the cylinder, it acts parallel to the length of the grain of the wood, scraping away the fibres, one by one, without cutting, and leaves a very rough surface. In the same manner, the narrow chiflels, formers, and other instruments, are to be used according to the work which is to be done, taking care that the wood be cut equally, and that the instrument be not pulled suddenly forwards, or sometimes more strongly than at others; and taking care also that the instrument does not follow the work, but that it be kept firm on the reft, without yielding. The chiflel and chiffe] are the instruments by far the most frequently used, and the most necessary in this art. Soft woods are almost entirely turned by them.

To make the end of the work exactly flat, the thin side of the chiflel is laid upon the reft, so that the plane of the edge may lie exactly upright. The hand is depressed, that the lower corner of the edge may lie against the work, and cut a deep circle into it, near the end, and being steadily advanced, cut to the centre, separating a thin round chip, and leaving the end quite flat. The cutting corner of the chiflel must be directed exactly perpendicular to the length of the work, in advancing it, otherwise the end will be either concave or convex, and care must be taken to keep the plane of the edge truly upright, and hold it very firm, for there is danger of the work drawing the chiflel into the end of it, with a deep spiral cut, like a screw, and tearing the work out of the chuck.

A cylinder of wood being formed by the process, we have just described, if it is required to turn it hollow within-forwards, the reft is fixed opposite the end of it, with the edge of the reft perpendicular to the length: then a sharp-pointed tool is used, to bore such a hollow in the end as will form the required cavity, using the inside callipers (fig. 35.) to determine the size of it. The file-tool, which is made with a cutting edge on the side, like a knife, may be used, if it is required to make the bottom of the cavity square; or a hooked tool, with the cutting edge at the end of the hook, may be employed to enlarge the inside to the proper size: the gauge (fig. 34.) is used to determine the depth to which it is to be turned.

This is the process for turning soft woods, which are generally of a fibrous texture: but hard woods, ivory, and bone, are turned with different tools. The points or cutting edges of some such tools are represented in figs. 23. and 24; they are bevelled only on one side, and the angle of the edges is obtuse. The rounded-pointed tool, and the sharp angular-pointed tool, are those employed for firft roughing out the work, and by them a number of contiguous grooves are cut in the wood, until its grain is broken and divided, and the irregularities reduced; then an edged tool can remove the remainder: but as the edged tools will only cut or scrape off thin shavings, they are not used when the work is to be reduced to size, but only to finish it. The manner of applying the tools to the work is shewn in fig. 39. and is nearly the same as for turning brass, or other soft metal: the upper surface of the tool is directed to the centre of the work, the intention being to scrape away shavings in hard wood, and in soft to cut chips, as at figs. 41. and 42. The graver (fig. 40.) is a very useful tool for hard wood: the manner of using it, as well as other tools, will be described when we come to speak of turning in metal.

After the work is completely turned, it is next to be polished, and this cannot be done with the instruments hitherto mentioned. Soft woods, as pear-tree, hazel, maple, &c. ought to be polished with shank-skin, or Dutch rubbies. There are different species of sharks, some of which have a greyish, others a reddish skin. Shark’s skin is always better when it has been used; at firft, it is too rough for fine polishing.

The Dutch ruff is the equineum hyemale: it grows in moist places, among mountains, and is a native of Scotland. The oldest plants are the boll. Before using them, they should be moistened a little, otherwise they break in pieces almost directly, and render it exceedingly difficult to polish with them: they are particularly proper for smoothing the
hard woods, as box, lignum vitae, ebon}', and chalk, finely pounded and put upon leather, or a linen cloth a little moistened with this: the piece is rubbed as it turns round in the lathe; and to prevent any dirt from adhering to any part of it, every now and then it is rubbed gently with a small brush dipped in water. To polish metals very finely, the workmen make use of a particular kind of earth called tripoli, and afterwards of putty, or calc of tin. Iron and steel are polished with very fine powder of emery; this is mixed with oil, and put between two pieces of tin or pewter, and then the which is rubbed into them and mixed with. The and silver are polished with a burnisher, and that kind of red stone called blood-flour. Iron and steel may also be polished with putty, putting it dry into shamoy-skin.

All kinds of articles in wood are turned in the above manner; but many contrivances are necessary to mount different things in the lathe.

The small figures in the plate represent various chucks, which are occasionally employed, and which are adapted for turning different kinds of work.

**Figs. 2. and 3.** exhibit a small wood chuck, which is adapted to be screwed to the mandrel at a, a hole being perforated in the centre of it, at b, into which a small piece of wood or ivory is to be inserted, in order to turn it. To hold the work fast in this chuck, it is divided at the end b by two saw-kers, at right angles to each other, as shewn in fig. 3, so as to separate the end into four segments, which admit of expanding or closing; a hoop or ferrule is fitted on the outside of the chuck, which part is made tapering, so that forcing the ferrule farther on, will close the four segments together, and bind the work, which is turned: this will hold the work. This is a very convenient chuck for holding small pieces of ivory, and particularly for the purpose of polishing.

**Figs. 12. and 13.** exhibit a similar chuck, made in brads, for more delicate work; it is only divided into two segments.

**Fig. 4.** is a brads box, to screw to the mandrel, and hold a wood chuck, such as we have before explained. Wood chucks are usually made to screw on the mandrel by means of a hole in the chuck, which is cut with a female screw within. The objection to this mode is, that the threads of the screw on the wood wear away by continual use. In fig. 4, a brads female screw, a, is cut to fit the screw of the mandrel, and at the other end, b, is a box, allo cut with a screw within, into which the wood block or chuck is screwed, as shewn by the dotted lines, so as not to come out without great force: by this means, the fitting of the chucks to the mandrel is not with a wooden screw, as in general, but with a brads one, which will not be liable to get out of the truth, but will always screw up to the same shoulder. The lathe should have at least two dozen of these wood chucks, with cavities of different sizes, and some of them looped with iron at the outer end, to prevent them splitting. The brads box is a great security against splitting.

**Fig. 5.** is a very useful arbor for turning wheels, collets, or any other flat piece of work that will admit of having a small hole in the centre of it. A brads screw-chuck, a, is fitted to the mandrel, and a female pin, b, is fixed into it, and projects an inch or more: the pin is turned true, and the work is fitted fast upon it, either by turning the pin to the size, or by broaching the hole in the work; and to prevent the work from slipping round upon the pin, it is pinched fast up against the flat surface of the chuck, as shewn by the dotted lines, so as not to come out without great force: by this means, the work will be held fast, and will be carried round by the chuck, so as to be turned by the application of proper tools upon the reft. These kinds of arbors should be of all sizes, to fit the holes in different wheels, &c.

**Fig. 10.** is a brads chuck, which is very useful for holding small pieces of brads work; it screws to the mandrel at the end a; the hollow part, b b, has fix screws tapped through it, and pointing to the centre, as shewn in fig. 11. By screwing in these screws, their points will pinch upon any piece of work which is put into the chuck, as shewn at d d, and hold it firm. The screws being regulated, of adjusting the work d to a true centre with the line of the mandrel.

**Figs. 16. and 17.** are views of chucks having similar properties to the preceding: a (fig. 16.) is the end which is screwed to the mandrel; b b is a circle of brads, having a mortise or opening across the centre of it, as in fig. 17; into this opening two brads dies are fitted, and screws d d, are placed behind them, to approach them together: the screws come through the outside of the chuck, and have square heads, which are to be turned by means of a key. The adjacent surfaces of the two dies are hollowed, so that they will embrace a piece of wire or other similar substance which is put between them, and the dies may be cut like a file, to hold it fast. By means of the two opposite screws d d, the work may be adjusted to the centre line of the mandrel.

**Figs. 20. and 21.** are a table-chuck, proper for holding wheels or flat plates by the circumference, while the centre parts are turned: a is the screw to fix it to the mandrel; b b, a large circular plate, turned perfectly flat on the front surface. In this plate are grooves, pointing from the centre to the circumference, as shewn in fig. 21: the grooves are adapted to receive clamp-pieces, d d, d d, by means of which the wheel or other work is bound fast against the flat surface of the chuck. The grooves admit the clamps d d, to be placed at any distance from the centre, according to the size of the work, and to place them at those parts where it will be most convenient to apply them.

The form of these clamps is shewn more particularly in fig. 22: f are slides of metal, which are fitted to the grooves in the chuck; and the grooves are dove-tailed, so that these slides can be put into the grooves at the back of the chuck, but will not draw through the grooves into the front. Screws are tapped into the slides, and draw the clamps, b, against the face of the chuck, and hold fast the work, which is placed beneath their claws. The clamps, b, have shanks projecting from them at right angles, which pass through the grooves, and keep the clamp from turning round to one side.

**Figs. 35. and 36.** represent the callipers used by turners to take the measure of their work: they are made of two curved pieces of steel-plate, united together by a joint. When they are opened, as in fig. 36, the dimensions of a round piece of work may be found by measuring between their points, as shewn by the dotted circle; but if the points are closed together, as in fig. 35, so that they pass each other, then the callipers are adapted for measuring the diameter of internal cavities, by the distances of their points from each other.

Several other kinds of callipers are used by turners, but these are the most convenient, as they serve equally well for inside and outside dimensions. Some callipers are made double, like a pair of scissors; and the points at one end are for inside measures, while the others are for outside measures; and the distances of all the points from the joint being exactly the same, the inside measure of any hollow work being...
being taken by one end of the calipers, the opposite end will be readily opened to the requisite dimensions for a solid to fill the hollow.

Fig. 34. is a gauge for measuring the depth of hollow work. A is a ruler, through which is a socket to receive another ruler B; and a clamp-screw is fitted through the side of the socket, to hold the ruler, B, fast in the socket. The edge of the ruler, A, is applied to the end of the work, and the other ruler is then shifted through its socket, until the end of B touches the bottom of the cavity; and in this state, the clamp-screw being fastened, the gauge may be applied to the piece of work in the lathe, to ascertain if the cavity is turned out to the required depth.

Fig. 6. is a chuck for turning wood when it is a long piece, which will admit of being supported at both ends, or between centres, as it is called. The chuck has a screw within the part a, to fix to the mandrel, and the other end is of steel, with a pin b in the centre; and on each side of the pin is a sharp edge c, like a chisel, the line of the edge pointing to the centre of the pin. When a piece of wood is mounted between the points of this centre pin and of the back centre, as we have before described, if the back centre screw is turned, it will force the piece of work against the mandrel and the pin b, and the edges c will penetrate into the opposite end of the wood; in this case, the motion of the mandrel and chuck a will be communicated to the wood, to turn it round. The centre pin b is made to project beyond the edges c, and by this means the work may be removed from the lathe, and put in again if required, because the centre pin will enter again into the fame hole in the end of the work, and restore the work to its original position.

Fig. 7. is a chuck for the fame purpose, but it is made with a flat circle of brass, and three pins, c, are fixed in it instead of the edges c, c. This kind of chuck is shown in use in fig. 1, to turn a pillar for a balustrade.

When a piece of metal work is to be turned between centres, the edges or points of the lathe chucks cannot be made to penetrate the end of the piece, and therefore a small chuck, b, (figs. 14 and 15.) is screwed to the mandrel: in the end of this chuck, at b, is a hole, which is made square withinside, and the work has a square filed at one end to fit the hole. The other end of the work is supported by the back centre, a small hole being made in the end to receive its point; or if the end of the work is sharp-pointed, the back centre pin is drawn out of its socket, and turned end for end: the end of the pin opposite to the point has a small centre hole for the reception of such pointed work. Iron and steel work may be turned very conveniently by means of a square, but not very accurately; and after the work has been turned out of the lathe, and the square cut off, if it be required to turn the work again in the lathe, it is very difficult to find the true centre.

All works requiring great accuracy, as arbors, screws, axles, spindles, &c. are turned between centre points, thus: a chuck (fig. 8.) is screwed to the mandrel by the screw in the part a, a steel centre point b being formed at the end of it. The point is turned very truly, to be exactly in the centre line of the mandrel. The work is mounted between this point and the point of the back centre; and to communicate the motion of the mandrel to the work, a driver (fig. 9.) is screwed fast on that end of the work nearest the chuck. The driver is an iron ring, with a screw d tapped through one side of it, to pinch the work so fast as to prevent the driver flipping round upon the work; and on the side opposite to the projecting pin, e.

The chuck (fig. 8.) has a fixed claw e fitted through it, and fastened by a screw: the edge of the claw is bent at a parallel to the direction of the mandrel, so that the end of it will catch the tail f of the driver, and turn it round, together with the work on which the driver is fixed.

The form of the chuck fits in and out of the socket, through the chuck, in order to remove the claw e to greater or less distance from the centre point b, and adapt the chuck to operate upon different sized drivers, for delicate or large work. This is the most accurate method of turning iron work in a mandrel lathe, because the centre points at the ends of the piece are preferred. When one end of the work is finished, the driver may be shifted to the other end. Such work may at any time be mounted again upon its original centre points, in any kind of lathe, to turn wheels, collets, &c. which may be fitted upon it.

The form of the driver is shown in fig. 30. In order to make it fit different sizes, the sides of the ring opposite to the screw d is made angular, and the point of the screw forces the work into the angular part.

This driver may be fixed on either end of the work, whilst the other end is turning; but when it is necessary to fix the driver on that part of the work which is finished, the end of the screw d is apt to pinch and bruise it; it is therefore proper to interpose a piece of iron between the point of the screw and the work. But it is better to use the driver shown in fig. 31: it is composed of two bars of iron, united by two screws passing through one bar and tapped into the other: both bars are somewhat hollowed out in the middle, that they may encompass the work. If this should be found to injure the work, a piece of sheet-lead wrapped round it before the driver is put on will prevent it from damaging the work; and if the screws of the driver are drawn very tight, it will carry the work about with sufficient force to bear turning.

When a piece of iron or fixed work is to be turned, the centre points at the ends must be found with great precision before it is turned, because it is difficult to cut away great protuberances in metal. The centres are first found by the compasses, and marks are lightly punched in the ends by a conical-pointed punch. The workman now places the work in the lathe, between the points of the mandrel and that of the back centre, but without fixing any driver on the work; he then fences up the centres, so as to hold the work just tight enough to prevent its falling down. In this state, by turning it round with one hand, while he holds a piece of chalk against it with the other, he ascertains whether it is pitched nearly concentric on the points; and if it varies much at any one point, he turns back the screw to take out the work, and punches new centre points, or alters the old ones, taking care to move them nearer to that side which appeared to project farthest in revolving, and was of course marked by the chalk.

When he has, by repeated trials, found the true centre, he fences up the centre point so hard, that it may effectually mark the end of the work, by forcing the points to the bottom of the marks punched; then taking the work out of the lathe, he drills holes in the ends, at the places which the centre points have marked, and to such a depth, that the points of the lathe will not reach the bottom. When the work is again returned into the lathe, it will run very nearly concentric, and the driver being screwed fast on either end of the work, as is most convenient, the work will be turned round by the chuck projecting from the chuck. The work is now ready for turning, which is done by different tools, and applied in a very different manner from the chisels and gouges for turning wood. Figs. 37. to 40. are different examples of the manner of turning metals: a tool applied in the manner of fig. 39. operates very well upon
upon brass and bell-metal. The cutting edge should be ground nearly to the angle which is there represented, and the upper side should be directed nearly to the centre of the piece; the edge will then scrape away shavings from the metal. The tool has some tendency to retreat backwards from the work, and must be held firmly thereto. The edges of tools, applied as shown in fig. 39, may be formed to any of the shapes shown in figs. 23 and 24, the angle of the cutting edge being in all cases nearly the same.

The graver (fig. 40) is an extremely useful tool, and fit for roughing any metal or hard wood: it is a square bar of steel, cut off obliquely, and the greatest obliquity of the cutting plane is in the direction from one angle of the square to the opposite angle. This produces a prominent point on one of the angles, which point is applied to the work in the manner shown in fig. 40, and cuts off continuous shavings instead of scrapings: this is owing to the direction of its edge, which is disposed obliquely to the motion with which the work meets the edge in its rotation. The turner should be provided with gravers of all dimensions.

Fig. 37, is the action of what is called a heel tool for turning wrought iron or copper; the edge of this is applied nearly in a tangent to the work, on the same principle as the chisel is applied to cut wood. The heel of the tool is placed upon the reft, and being just opposite to the edge on which the pressure or drift of the work lies, the tool cannot escape from its work, although the pressure upon it is very great, so much so, that it would be impossible to keep the tool to its work, if it were held upon the reft, as in the case of the chisel, merely by the lateral friction on the reft. The handle of the heel tool is long, and is held inclined upwards, so that the workman can rest the end of it on his shoulder, whilst he holds it very firmly down on his shoulder and on the reft with both hands. This firm position is very necessary, because the heel tool is liable to draw deep into the work, and take away too large a chip. This tool will cut away thicker chips than any other, being what the workmen term a greedy tool. The requisite height of the reft, to make the edge of the tool a tangent to the proper point, is a matter of importance, and requires the attention of the workman, who can only learn the management of this tool by experience. It is not well adapted for finishing work with accuracy, but is very expeditious in roughing out wrought iron: it generates so much heat in working, that it is necessary to keep it constantly wet; and in large lathes, a constant stream of water is made to fall on the edge at the place where it is cutting. The graver and all other tools work wrought iron and steel to the greatest advantage when wetted.

Fig. 39, is the tool used for turning cast-iron; this substance must be scraped away, and it is plain from the figure, that the cutting edge is presented very nearly in the same manner, with respect to the work, as in fig. 39; but from the hardness of cast-iron, it requires a very considerable force to press the edge against the work, and it would be impracticable to hold it up effectually on the plan of fig. 39; hence the tool in fig. 38, is bent at the end, and is lodged over the edge of the reft, in the manner of a lever; the handle is pressed down at the extremity, and lifts up the edge against the work with very great force. The workman must bear on the handle of this tool with the requisite pressure; and in large work, such as cannon and mill-shafts, he usually feats himself upon the end of the tool, which is made very long in the handle.

Different substances require different velocities of motion to cut with the greatest advantage. Wood can fearfully be made to move too quick; and it is always preferable to take a very thin chip, and move as quick as possible; than to move slowly, and compensate for the loss of time by cutting deep. Brasses and bell-metal may be moved very quick, but not with half the velocity of wood. wrought iron and copper must be turned more slowly, and the tool must be kept wet. Steel should go rather lower than wrought iron, for it is liable to have hard veins in it, which the workmen call pins: these will be cut through if the work moves too slowly, but with a quick motion they will destroy the edge of the tool: this makes some workmen think that the pins are actually formed, or that they become hard during the operation of turning, if too great a velocity is used. Cast-iron must move very slowly, indeed it can fearfully turn too slowly, and the tool applied as at fig. 38 will cut a thick chip.

To obtain these different degrees of velocity, the foot-wheel of the lathe fig. 1, is made with several grooves of different diameters, and the mandrel pulley $b$ has also different sizes. A band can be applied upon any of these grooves at pleasure, and the workman finds by experience what velocity is best for different kinds of work.

The most experienced workmen prefer a centre lathe to a mandrel lathe, when they have to turn accurate iron-work, which will admit of being poised between centres; and it is obvious, that the revolving motion of the centre point at the end of the mandrel is of no use; and if the point should be the leaf out of the centre line, or if the mandrel has any shake in its collar, the work would not be turned truly. But in a centre lathe, where narrow work is fixed immovably, or, as the workmen say, with dead centres, this cannot happen; and if the work is screwed up tight between the centres, so that there is no shake, the centre points at the ends of the work must be precisely in the centre line of the work.

The manner of giving motion to a piece of work in the centre lathe is, as we have before described, by a loose pulley fitted on the centre pin, and from this pulley a pin projects in a direction parallel to the centre line, so that it comes exactly in the place of the claw (fig. 8), and turns the driver round when the pulley is put in motion by the band, either from a foot-wheel or hand-wheel.

When the mandrel lathe is used for centre work, the centre of the chuck must be turned very exactly, so that it does not vary in the leaf from the same position when it turns round; and in all cafes, the mandrel must be fitted with the most scrupulous accuracy into its collar, so that there will be no shake; for unless this is the case, the lathe will not turn chuck-work with any accuracy.

Meffrs. Holtzapfel and Deyerlien make very excellent lathes on the plan represented in fig. 76. The bed and the puppets are made of cast-iron, and very correctly fitted, such lathes possess great strength: some of them are fitted up, as in the figure, with a pattern screw at the end of the mandrel, for the convenience of cutting screws on work. For this purpose, the mandrel is fitted in a collar at each end, and the necks are cylindrical, so as to admit of the mandrel moving endways at the same time that it turns round. On the extreme end of the mandrel, beyond the collar $D$, a pattern screw is fixed, which has the defiance of its threads corresponding with the screw that is destined to be cut upon the work, which is fixed in the lathe by a chuck: a piece of brafs, $n$, is provided, which is cut with threads adapted to the pattern screw, and which can, by turning a screw, be drawn up against the pattern screw, so as to work in its threads; and in this state the mandrel, at the same time that it turns round, will move endways in its collars with a screwing motion; and in consequence, a pointed tool being presented to the work, and held fast on the reft, will cut a spiral groove or screw upon its circumference. This contrivance is more fully
fully explained in the article Rose-Engine. It is the most
convenient method of all others for cutting screws, and very
accurate, if the pattern screws which are fixed on the mandrel
are correctly cut. For all purposes of wood turning, it is
undoubtedly the best method, and far preferable to the
common one of cutting screws flying, as it is called, that is,
by means of the tools 32 and 33, which are applied to
the work, and moved along endways at the same time
that the work turns round, so that they cut a spiral. (See
Rose-Engine.) The rapidity and accuracy with which some
workmen cut screws in this way exceed belief; but it is
only by long experience that this habit can be acquired, and
for those who have not had such experience, some mechanical
help is necessary. The objections made by accurate work-
men to the flying or screw mandrel are, that the necks
must be cylindrical, it cannot be kept so perfectly fitted in
its collars as the common mandrels, which have a point at
the extremity, and the neck at the other end is made slightly
conical, so that it can always be screwed up to fit in the
collar. Messrs. Holtzpafts mandrels are made of har-
dened steel at the necks, and the collars are also hard;
they are accurately fitted, and have no shake when new.
From the hardness of the materials, they will wear a long
time before they get any looseness.

Mr. Mauldlay has the most complete set of tools for all
kinds of mechanical works at his manufactory, and is particu-
larly well provided with turning apparatus. All his
lathes are made with triangular bars, such as is described in
our article LATHES, and the mandrels are all formed with
conical necks and collars. The bar lathes are very accurate,
particularly when the slide-refl is applied to them, as there
described. The bed lathe may also have a slide-refl applied,
as is shown under Rose-Engine.

If a piece of metal, after being properly turned, is to be
bored hollow within, like a gun-barrel, the back puppet is
to be removed from the bed of the lathe, and another sub-
fitted in its place, having a hole or collar through it, into
which the neck or end of the iron is to be correctly fitted,
the other end of the iron being supported and turned round
by being fitted into a chuck at the end of the mandrel,
and eyle by means of the centre point at the end of the
mandrel, and with a driver, as in figs. 8. and 9. The reft is to be fet
opposite the end of the piece where it comes through the collar,
and drills or borers are to be applied, similar to those used by
locksmiths in boring keys, beginning with a small one and
afterwards using larger ones, until the hole is made as wide
and deep as necessary. The borers must be held very firm
on the reft, otherwise there is danger of not holding the hole
straight. The boter should be withdrawn from time to
time, to oil it and clean the hole. As it is difficult to make a
hole quite round or concentric with the outside by means of
borers alone, it is necessary to have also a turning tool con-
derably smaller than the hole, one of the sides of which is
sharp, very well tempered, and a little hollow in the middle.
This instrument being fixed in a long handle, is to be intro-
duced into the hollow, and applied with steady hands to the
inner surface of the hole, and it will entirely remove every
inequality that may have been there before its application.
The collar puppet is only refitted to, when the piece which
is to be bored is of considerable length; for if it is short, it will
be held sufficiently fast in the chuck, without the necessity
of supporting the extreme end.

A collar puppet is sometimes necessary in turning centre
work when the work is long, and so slender, that it bends or
saggs by the fires of the tools: the collar is then applied
to support the work at the part where it is weakest and
bends most.

Turning of elliptical or oval Work, such as Picture-frames,
Snuff-boxes, &c.—This is performed in the same lathe,
and with the same tools, as the circular work; but the lathe
is provided with a chuck, which causes the work to traverse
in a very curious manner, by a motion given to it in a direction
to and from the centre of the mandrel as it revolves; so that
a tool held up against the work will cut an elliptical figure
instead of a circle. Elliptical work has a very singular
appearance when in motion; for after the work has been
turned truly elliptical, every part of the circumference,
except the exact point where the tool was applied, appears
to vibrate, or be eccentric in a great degree, but that one point
of the circumference runs perfectly true and regular, the fame
as the whole circumference of a piece of circular work does.
The mode of action of this ingenious apparatus is rather diffi-
cult to describe, and it is first necessary to understand the prin-
ciple of its action. This is the same as the trammel or elliptic
compasses; see fig. 29. An octagonal or square board
A A, B B, has two grooves cut in its surface, which in-
tersect each other at right angles; this board is held down
upon the surface where the ellipse is to be described, with
the centre lines of the cross grooves coincident with the
two diameters of the intended ellipse, and of course their
intersection will be its centre. The curve D D is traced be-
yond the circumference of the board, by means of a pen or
pencil, which is fixed at F, to a radical bar or beam F G H;
this bar carries two other points or pins, G and H, which
are attached to flinders, inserted into the cross grooves of the
board, as shown in the figure: the flinders are fitted in truly,
so that each of them will have a motion in its respective
grooves; thus the flider of the pin H will move along A A,
and the flider of G, along the groove B B. By turning
about the beam F G H, the flinders go backwards and for-
wards in their cross grooves with a simultaneous motion; so
that when the beam has gone one-fourth way abont, one of
the flinders will have moved from the circumference of the board
A B, to the common centre of the cross grooves; and when
the beam has gone half round, the fame flinder will have pro-
ceeded the whole length of the cross, and arrived at the
opposite side of the circumference. The fame applies to the ot-
er flinder, and when one flinder is at the centre, the other
will always be at the circumference.

The pins F and G H can be fixed at any part of the
beam at pleasure, (though this is not fo represented in the
drawing,) for the purpose of setting the trammel to draw any
particular ellipse: thus, place the beam in the direction of
the line A A, then the pin G will be in the centre of the cross
groove, now fix F at such a distance from the centre, as
is equal to half the small diameter of the ellipse, and let H fo
far distant from G, as the difference of the two diameters;
consequently, from F to H will be equal to half the longest
diameter. Now, in turning the beam round from the direc-
tion A A, till it comes to the direction B B, the point G
will depart from the centre along B B, and H will approach it
along A A, till it gets to the centre. Then will the pencil
F be so much farther from the centre, as G is distant from
H, and the pin has in its circuit traced one-fourth of an
ellipse. The beam being turned quite round, will complete
the whole curve.

This apparatus may be applied to turning by some modi-
fication. Suppose the two cross grooves made in a round
board, as large again as that represented in the figure; then,
if the whole apparatus be inverted, and the beam F H held
fast in a vice, or otherwise, the board with the cross may be
traversed round upon the fixed flinders, in the same manner
as the beam could be traversed round upon the fixed board.
Suppose a tracing point is held to the back of the board,
exactly opposite to the place where the tracing point \( F \) is fixed to the beam, and held fast; it is evident that its point will trace the name ellipse on the back of the board, that was described on the surface which the board lay upon in the former instance: or a chisel being held fast in the fame spot, will cut the board elliptical when it is turned round; and the chisel being successively applied at different points along the line of the beam, a series of concentric ellipses may be drawn in the board, to make mouldings for picture-frames or other ornaments. If the distance of the two fixed pins \( G \) and \( H \), and the chisel \( F \), is altered, it will vary the proportion between the two diameters of the ellipse, in the fame manner as before described of the trammel.

The oval chuck is constructed in a different manner from this, though it preserves the same movements. It consists of three parts, the chuck, the slider, and the eccentric circle. The chuck \( e e f \) (fig. 27.) is attached to the mandrel by a screw-focket, cut in a piece \( j \), which projects from the centre of it behind; and hence the chuck turns round with the mandrel with a circular motion.

The chuck has a dove-tailed groove, formed in it at the front side, for the reception of a slider \( g \) \( h \), (fig. 26.) which traverses freely in the groove; the groove is formed, as the figure shews, by pieces \( i, j \), screwed to the chuck on each side. In the centre of the slider, in front, is a screw \( b \); see also the plan, fig. 25. The screw \( b \) projects from the slider, and by means of it, a wooden chuck may be screwed against the slider \( i \) and any work can be fixed in the chuck in the usual manner. The work so fixed, at the fame time that it turns round by the motion of the chuck, has a sliding motion across the centre, which motion being given according to a certain law, produces an elliptic motion. The sliding motion is given by the eccentric circle (fig. 28.); this is a ring of brafs, attached faft to the puppet of the lathe, clofe to the collar, in which the neck of the mandrel runs. The mandrel passes through the aperture \( i \); the ring has a flat plate, \( m \), to strengthen it, and forming two bends at the ends \( m, m \), which bends have screws tapped through them, and pointing exactly to each other: these screws are sharp at the points, and are inserted into small holes in each side of the puppet, as is shewn in the plan, fig. 25. at \( C \), the back of the plate \( m \) of the circle lying flat against the front of the puppet \( C \); by this means the circle is fixed faft; the two screws are horizontal, and both point to the centre of the mandrel \( j \); therefore, by screwing one screw in, and the other out, the whole circle may be moved sideways horizontally, so as to give it any required degree of eccentricity from the centre line of the mandrel, and it will be held stationary wherever it is placed.

Fig. 27. is a back view of the chuck, and shews two grooves made through it in the direction of the length of the slider; these admit the shanks of two pieces of steel \( n, n \), to pass through the chuck, and they are firmly attached to the slider \( g \), by a screw for each in front of the slider, as shewn in fig. 26. The two infae edges of the pieces \( n, n \), are exactly parallel to each other, and the distance between them is exactly equal to the diameter of the outside of the ring 28, which ring is included between them, when the chuck is screwed to the mandrel \( b \), and the circle fixed to the puppet \( C \), as shewn in fig. 25.

Suppose then the circle is let concentric with the mandrel; if the mandrel is turned round, it will caufe the chuck \( e \), and slider \( g \), together with the work attached to the slider by the screw \( b \), to revolve. The work will now run in a circle, and turn circular work as usual, because the slider is guided by means of its claws \( n, n \), which embrace the circle, and will keep the same position in its groove in the chuck during all the parts of a revolution, because the circle is concentric with the mandrel.

To fet the chuck for an ellipse, place the point of a tool opposite the work, at such a distance from the centre of the work, that it will describe a circle of a diameter equal to the breadth or smallest diameter of the ellipse intended to be turned. This is best done by fixing the tool in the slider.

Now turn about the mandrel, till the slider \( g \) comes horizontal, and set the circle 28 eccentric from the mandrel by its screws \( m, m \); it will of course move the slider \( g \) in the groove of the chuck, and also the work will move with it to a greater distance from the centre, because the two pieces \( n, n \), at the back of the slider include the circle between them. The quantity of eccentricity given to the ring, must be equal to the difference between the two diameters of the required ellipse, so that the work shall move, or throw out a sufficient distance, to bring the point of the tool as much beyond the circle first described, as the length of the ellipse exceeds the breadth. The point of the tool will now be at one end of the longest diameter, and here we will commence to trace the curve all round. In turning the mandrel round till the slider comes vertical, it must return in its groove to the place it first occupied. This is the centre; because the eccentric circle which guides the slider is not eccentric in a vertical direction, though it is in the horizontal. In this motion, the point of the tool has cut or described one quadrant of an ellipse, but it is gradually approached to the centre by a quantity equal to the eccentricity of the circle. By continuing to turn the mandrel round farther, the circle will caufe the slider to move out the other way from the centre in its groove until it comes again horizontal, when it will be at the greatest throw out, as the turners term eccentricity, and the point of the tool will be at the other end of the longest diameter, having described one half the curve; continuing to move forwards till the slider becomes vertical, it will become eccentric again, and the tool will be at the breadth of the ellipse, having finished three quarters of the ellipse; and in turning the next or fourth quarter, the slider throws out till it comes horizontal, and brings the work to the position where we first fert out, viz. at its greatest eccentricity; and with the tool at the end of the longest diameter of the ellipse.

The simple trammel (fig. 29.) is not easily recognized in this complicated chuck, although it has all the same movements. Thus, let us return to our first idea of a board with two crofs grooves in the back of it, turning round on two fixed pins, which enter the sliders in those grooves. Suppose that one of the pins is extended to a large ring, and the groove proportionably widened to receive it, this will have the same effect. Such a groove is formed by the two pieces of steel \( n, n \), which have ftrait edges made truly parallel to each other, and perpendicular to the length of the slider which carries them. The other fixed pin is represented by the mandrel; and the slider being always confined in a right line across it, has the same effect as a pin entering a ftrait groove.

This ingenious apparatus was invented early in the last century by the celebrated mathematician Abraham Sharp. Before his time, oval-work was always turned in a rofe-engine, which had an elliptical pattern.

In turning oval work, the tools must be delicately used, because the circumference moves with an unequal velocity at different parts of its revolution.

Method of ornamenting turned Articles by an Eccentric Chuck.

This produces a similar effect to the rofe-engine; but as a chuck of this description can be applied to any lathe which has a mandrel and slider, it has been referred for the present article.

Figs. 18. and 19. are two views of an eccentric chuck: a
is a socket, which is screwed to the mandrel; and bb the chuck, which is formed in the fame piece with the socket a; a dove-tailed groove is formed in the front of the chuck, by means of two pieces d, d, which are screwed to the chuck, and into this groove a slider, e, e, is fitted; to this slider a centre pin is fixed very firmly, and upon the centre pin a figure, f, is fitted, so as to turn round freely; in the front of the circle a screw, g, projects, for the purpose of fixing chucks to the circle. The slider is applied to the chuck, just the fame as in the oval chuck, but is not left at liberty to slide in the groove, for a screw, k, is applied, which will move the slider gradually in the groove, but always holds it fast where it is placed. By means of this screw, the centre pin of the circle, f, can be made either to coincide with the line of the mandrel, or it can be set with any required degree of eccentricity from the mandrel, as is shewn in fig. 15, by the difference between the line of the screw g, and that of the socket a. The circle is divided round the edge with notches or teeth, cut at equal distances; and a tooth or catch, h, is fitted on the slider by a centre screw, and has a tooth which can be inflected into any of the teeth at pleasure, and will hold the circle fast from turning round upon its own centre pin. In this case, any piece of work, which is fixed to the screw g, will turn round with the mandrel, just as though it was fixed immediately thereto. The manner of using this tool is as follows: when the excentric chuck is screwed to the mandrel at a, the screw, k, is turned, until the screw, g, is brought exactly into the line of the mandrel. A wood chuck is now screwed on at g, and a piece of work fitted into it; which work is turned to its required figure, just as though the wood chuck was screwed to the mandrel itself, without the interposition of the excentric chuck, which hitherto has been passive. The work being turned, it can be beautifully ornamented on the flat surface, by tracing a number of circles upon it. To do this, turn the screw k, until the centre of the circle, f, is removed to a given distance from the line of the mandrel; now apply a tool to the end or flat surface of the work, by means of the slide-reel, and turn the mandrel round, until the tool has cut a fine circular line in the surface of the work. Now it is evident that this circle will not be in the centre of the work, but removed from the centre thereof a distance equal to the degree of excentricity given to the slider. Having thus described one circle, flop the lathe, and release the catch h; then turn the circle, f, round one tooth or notch.

Put the lathe again in motion, and describe another circle by the point of the tool, held exactly in the fame spot as before; but the circle so described will fall on a different part of the work to that circle which was before made, although its centre will be at the same distance from the centre of the piece of work. The lathe is flopped, and the circle, f, turned round another tooth: a third circle is then described; and when as many circles are described as the whole number of teeth in the circle f, the ornamenting is finished. It will consist of as many circles as there are divisions in the circle f, all of an equal size, and their centres arranged at equal distances, around the circumference of a small circle, which is concentric with the work. The whole produces a rosette or engraved figure upon the surface of the work, and the numerous interjections of the excentric circles have a very pleasing effect to the eye. This kind of work is seen on the cafes of many watches; and when well executed, is much esteemed.

**Turning Horizontal Hand-Mill, in Rural Economy, an useful contrivance of the hand corn-mill kind. It was invented by Mr. Wright, and consists of a fort of tub or box; the frame of the mill-part of which is three feet square, and three and a half in height. The mill-stones are eighteen inches in diameter, and inclosed in the tub or box, supported by two crofs-beavers, under which is a lever, having an iron pin or pivot, which runs through the centre of the bed stile into a socket in the bridge of the upper stile or runner, to which is attached the shaft and spindle, running through the eye of the runner and hopper, and supporting the fly-wheel and crank. A piece of wood of a round form, fastened on the shaft, serves as a feeder; and above is a screw to regulate the feed according as the mill is turned. On the side of the tub or box is a thumb-screw, fixed to the lever underneath, which regulates the stones, according as they are turned. The shaft runs through the crown-tree or crofs-bar at the top of the frame, on which is the horizontal fly-wheel and crank; to which are attached one or two handles, by means of which the mill is put in motion. Under the stones is a drawer; in which are placed three sieves of different fizes; one for taking away the broad bran, another for the coarse pollard, and the third for fopping the fine pollard, and letting the flour pass into the drawer, which is effected by a fort of iron fork running through a hole in front of the drawer, and fixing on one of the fieves.

Small hand-mills of this nature are extremely convenient and uful in many cafes.

**Turning Palisades.** See PALISADE.

**Turning-Evil, in Cattle,** a difeafe that caufes them frequently to turn round in the fame place. It is also called the **furdy**; which fee. See TUR in the Head.

The common remedy, recommended by Mr. Markham, is to throw the beast down, and bind him; then to open his skull, and take out a little bladder, filled with water and blood, which usually lies near the membrane of the brain, and then gradually heal the wound. Boyle's Works, abr. vol. i. p. 87.

**Turning to Rot, in Agriculture,** a term used in tillage to signify ftriipping, ribbling, baulking, and combing, according to the manner in which it is performed. It is the leaving of a narrow strip of ground whole, on which the furrow-flunce is turned. It is much used in Devonshire, Cornwall, and fome other diocifts.

**Turning to Windward, in Sea Language,** denotes that operation in failing, in which a ship endeavours to make a progreas againft the direction of the wind, by a compound course, inclined to the place of her destination. This method of navigation is otherwife called plying. See TACKING.

**TURNIP, or TURNIP, in Agriculture,** a moft uful and nutritious bulb-rooted plant, of which there are many different sorts in cultivation by the farmer. It has been long known in this country, but only more lately introduced as a field-crop, probably from Holland, or the Low Countries. It is from a more general introduction of this root into field-husbandry, that much improvement and advantage have been produced, not only in the management of arable land, but in the general system of feeding and supporting different kinds of live-stock. The culture of this root has, indeed, contributed much towards exploding the expensive and wantful practice of naked following, as well as to cleanse and ameliorate the foil, and render it more abundantly productive.

The turnip belongs to the genus brassica, and is well-known by its having a round, or rather long, fleshy, catable root, that varies considerably in these respects, as well as size and colour, in different sorts, under the state of cultivation. The leaves proceeding from the top of the root in 3 M
the middle part are large, and mostly of a full green colour, being ragged on the edges. The item arises from the midst of these in the second season of the growth of the plant, to the height of four feet, or more, producing a yellow flower, with cylindrical pods of some length, filled with small purple, or reddish-brown coloured seeds. See Brassica.

All the different sorts of this excellent plant are, for the most part, distinguished by the form or shape of the bulb or root, which appears in some measure to depend upon the diversity of soil, and the nature of the culture of the plant. But the sorts that have been had recourse to as field-crops, with the greatest success and benefit in different parts of the country, are principally of these two kinds; those having a round or flattish-formed root, that rests much on the surface of the land, and those in which the root is of the more long tap-rooted form, penetrating deeper into the mould with the lower part of the root, but flanking higher above it with the upper portion of the bulb.

In the first, or round flat-rooted sort, there is likewise much variety in the appearances of the tops as well as the roots, though the latter are mostly a little round and flattish. They are commonly distinguished in field-culture into the red-round or purple-topped, the green-topped, the white-topped, the yellow-topped, the black or red-topped, the hard or stone, and the Dutch turnip.

In the latter, too, or long tap-rooted sort, there is some degree of variety in their roots. They are usually known and discriminated by the farm-cultivator under the titles of the tankard, the tap-rooted, the pudding, the oblong, the long, round, and the hardy or French turnip.

It may be noticed, that the different varieties of the former of these kinds of turnips, in consequence of the roots of them being formed more on the ground close to the surface, than in those of the latter kind, which often stand high, naked, and much exposed in their upper parts, above it, are better suited to the purposes of general field-culture, in cases where there is much risk of their being hurt by the effects of frosts in the more severe winter months; but that in other cases, as where they are to afford an early feed, as for suckling cows, and in the fattening of forward sheep at an early period, the latter kind may be had recourse to as the most proper and beneficial. This is said to be the practice of some districts in the vicinity of the metropolis, where it is of importance to have forward lambs.

In different districts where this root is largely cultivated, different sorts of this plant are employed; and it is not improbable that some sorts may be more proper for some qualities of land than others, though little has yet been done in the view of deciding this point. Nor is it unreasonable to suppose, that among the many varieties of this highly valuable plant, there may not be some which, in addition to their superior hardiness, posses a greater proportion of the nutritious principle than others. It has, indeed, been stated that, in a great northern turnip district, the green-topped and white-topped are generally esteemed as more sweet and nourishing than the red-topped sort, which posses a degree of bitterness, and is diploped soon to become stringy and bad as food: that the white-topped sort, on the better kinds of land, is probably the most proper and beneficial, as while it has the property of being hardy, it grows to a large size; and that this and one of the stone or small hard sort, are the most commonly grown, and held in the greatest estimation in some of the best turnip districts still more towards the north. The latter of these sorts is, indeed, by some farmers in those districts, supposed to offend the fertility of the winter season much better than most of the other sorts; but then the produce on the acre is commonly much less. And by others in more southern districts, it is thought to bulb quicker, to have a greater solidity, a finer grain, a thinner skin, and to be smoother in the crown of the bulb; consequently to be less liable to injury from wetness and severe frost. And that although it may not grow so quick, or to so large a size, the latter of these defects may be obviated by leaving the plants a little thicker on the ground at the time of thinning and setting them out. Indeed, both the white and green-topped sorts are also much grown and approved in all these districts, and by some highly extolled on account of the qualities just noticed, as well as their being of a large growth, and continuing longer in a flate fit for use, especially the latter. The yellow-rooted or straw-coloured turnip, too, is found to be a firm-flaved and sweet-talled nourishing sort, but it has not yet been much cultivated, so that its properties are but imperfectly known. The red sort, which was formerly much esteemed, has now mostly given way to other sorts. And the black-rooted sort is very rarely cultivated in any district of the kingdom; nor even those of the Dutch sort, though the early kind of them might answer well for forward crops. Much might probably be done in getting good sorts, by collecting food from such as are the most hardy, and which grow to a large size, and fowing it in continuance.

In some northern and other districts turnips are grown much in mixture, which is a bad plan, as they have different growths, and of course rise unequally. And in the southern ones, the white globe prevails much in some instances; and the green round sort is found to stand well, and be larger as well as more certain in the produce.

The turnip is a sort of crop which is grown after many other different kinds, as those of a wheat flubbl, a pulse lay, a turn, potatoe, or any other similar kind of crop, as well as after the process of paring and burning the layers of old grass-lands. It is the practice too, in some districts of this sort, to have two turnip crops in succession, as the means of cleaning the land more effectually, which has been found to answer greatly in the barley or other crops that may be grown after them.

The foils which are the most proper for the growth of this sort of crop, are all those of the more light, friable, loamy, medium sandy, and other kinds, which have a sufficient depth; but it may often be raised with successe and advantage on many other sorts, which have the surface mouldy parts sufficiently fine, without there being too much moisture below, as those of the thin gravelly, loofe chalky, and many other sorts and qualities; even on the loamy clays, in some cases, when properly managed in their tillage preparations, and other ways.

A late practical writer has well remarked, that from the successes of the culture of this useful crop, on lands that differ greatly in their nature and qualities, it is plain that the plant admits of more latitude in respect to soil than many other sorts; though an opinion appears to have been too general among the cultivators of it, that it is only capable of being had recourse to with advantage, on such as are of a light, mellow, and open texture and quality. It is suggested too, that this has probably had considerable influence in preventing the culture of the turnip from becoming so general as, from its great utility and importance, it ought at present to have been. But though the turnip may be grown with successe and benefit on soils that vary considerably in their natural friabilities and compositions, it is constantly necessary, for the perfect growth of such crops, that at least the more superficial parts of the soil, or the beds of earth in which they grow, should be in as fine a reduced powdery condition as possible, as more is found to depend
depend on this, than even on the nature or qualities of the soil.

In the view of bringing land into a state of suitable preparation for this fort of crop, much breaking down and reduction of its parts are, of course, requisite. This fort of breaking and pulverization is sufficiently and beneficially performed in many different ways, as by rendering the land more penetrable to the roots of the plants, by promoting the growth of the small weeds more fully on the surface, and thereby making them capable of being more perfectly eradicated, and the young turnip plants, of course, be less endangered by them; while, at the same time, a more fine and mellow bed of mouldy earth is provided for the reception of the turnip-seed, and its vegetation and growth rendered more quick and strong in consequence of the more equal diffusion of moisture that must take place among the parts of the soil. Without such a state of mould in the soil being produced, it is found to be in vain to expect good crops of this fort. In order to provide this state of preparation in the soil, it is the practice in some of those districts where turnip husbandry is carried on in the most complete and successful manner, when the seed is to be put in on a fallow, to have recourse to three, four, and frequently five ploughings or tarrings of the land, having the cloddy parts of it well broken down, between the times, by harrowing in different directions, and the occasional use of the roller or other such means, as by these modes almost every particle of the soil becomes divided, and excep tedly to the influence and action of the atmosphere, and perfectly aerated and saturated with moisture. In these cases, some advise that the first operation should be performed towards the close of the year in a shallow manner, so as merely to take off the rough surface; the land may then remain in this state until just before the beginning of the spring, when it should be well broken and reduced by harrowing, and then crossed-ploughed to the full depth. When the land is weedy, it should be again broken down by the harrow in the course of a little time; but when clean, it is better to remain in its rough state. In this condition it may then be left until the spring be a little advanced, when it should have another ploughing to the full depth, and where the seafon is dry, and the soil of the more heavy or stiff kind, be immediately after harrowed, but where it is light, this may be deferred for a week or two. By repeating these operations sufficiently, the soil is most soon brought into a fine clean state of preparation for the crop.

Others, however, think the first ploughing should be deep, and the after ones and harrowings be continued to a later period, but at the same time, suggest, that they must, in general, be much regulated by the nature of the soil, the circumstances of the seafon, and the convenience of the cultivator.

In preparing fallows, as well as other lands for turnip crops, some, in different places, besides these means, make great use of scarifiers and feafifiers, and find them particularly beneficial in foul states of them.

Where the seed of this fort of crop is, however, to be put in after corn, early peas, tares, or other such crops, the preparation of the land is seldom carried to such an extent of ploughings and other operations. Much fewer are commonly thought sufficient for the purpose, as two, or three at most.

In preparing for this crop, after the surfaces of coarse pasture or other grassy lands that have been long in that state, old flintstone beds, or downs, have been taken off and reduced by means of paring and burning them, the practice is to have recourse to once ploughing over the lands in a light manner, the ashes having been previously spread out equally on the surface. In this way the most advantage is afforded to the turnip crops, and they have been well produced by it.

There are some other local practices of preparing for turnip crops, but they need not be noticed in this place, as being only of little use in certain cases.

In the application of manure in the preparing of land for this crop, in the first of these ways, and where it is of the calcareous kind, such as lime, marle, or other similar forts, it may be the best mode to make use of it after the second or third ploughing, especially in the former of these kinds, in the proportion of from one and a half to about three chaldrons, or thirty-two bushels; and in that of the latter, from eight to ten or fifteen ordinary cart-loads to the acre, as the circumstances and nature of the land may be; as in this manner such matters may become the most perfectly blended and incorporated with the mould of the soil. Each of these forts of substances has been found highly useful, in this way, in several different districts of the kingdom.

It is, however, clear, from the success of different cultures of this fort of crop, that the substances of the dung-kind, where they can be fully supplied, and used in the preparation of the land, or other ways, are the most fitted to the growth of the root. And that for such soils as possess a proper degree of lightness, and are in a fine mellow state of mould, those which are in the more reduced, or rotten short condition, may be the most suitable, as they are capable of being the most intimately mixed and incorporated with them; but that where they are more close and heavy, the longer and less reduced kinds may be more proper and beneficial, as they will not only tend to preserve these soils in a more open and loose state, but by their more gradual decay in them, render the earth more friable and mellow. Some, however, think them best applied in the medium state between these extremes. This fort of manure, when used in preparing land in this intention, should vary, in some measure, not only as the nature of the soil may be, but according to the manner in which the crop may be cultivated; in general, however, it should be put into the soil as nearly as possible to the period at which the seed is sown; as, in this case, in consequence of the new fermentation that necessarily takes place in the soil, the crop receives the most benefit from it. When, therefore, the crop is to be put in, in the broad-call manner, the dung may be spread out equally over the land, and be turned in with the seed-furrow; though some advise it to be lightly turned in by the ploughing that precedes the seed-earth, and to be well intermixed with the mould of the soil, by harrowing immediately before that earth be given. The former would appear, however, to be the better practice, especially when the manure is in a sufficiently reduced state, as the plants will have the most full advantage of it. The quantity must necessarily depend in a great measure upon the different circumstances of the soil, and the richness of the duny material; but less than from ten to twelve good three-horse cart-loads can seldom be made use of with advantage on the acre.

Where earthly and other matters, in mixture with dung, are had recourse to in this way, after being well prepared, as is sometimes the case, the proportion should mostly be considerably larger.

In cases where the crops are put in, in the ridge or drill manner, as the manure is wholly confined to the middle parts of the ridged-up earth, and does not occupy all the superficial portions of the land, a somewhat less quantity of it may answering the purpose; though a full and rather liberal allowance
allowance should always be made, as the safety and success of the crops depend much upon the rapidity and strength with which the young plants are at first pushed forward by such means.

In whatever way this fort of manure is made use of in this preparation, it should constantly be applied in an even manner, and be turned into the soil as soon as possible afterwards; as where this is not the case, great loss must often be sustained by the diffipation of the more liquid parts of it.

There are many different practices, in the preparation and application of this kind of manure, recurred to in different districts, in using it for the purpose of raising turnip crops, as may be seen by consulting the Corrected Agricultural Report of the County of Norfolk; and different kinds of it are sometimes preferred by cultivators, as that from fattening beasts, hogs, and the sheep-fold. But good clean dung of any sort is capable of answering the purpose.

The dung of rabbits, poultry, and pigeons are occasionally used with success in the raising of crops of this sort, after being rendered dry, and dispersed over the surface of the land in an equal manner. They are mostly used for this purpose in the quantities of from about twenty to thirty bushels to the acre, just before the time of sowing the feed. And as they require to be put into the soil to only a slight depth, harrowing may, in many cases, be sufficient for the purpose, or a very light and shallow ploughing. Rape-cake has long been employed as a manure in some districts, in preparing for turnips, as that of Norfolk, by having it fown over the land in a carefully reduced state, five or six weeks before the time at which the feed is to be put into the soil, in the quantity of about a ton to three or four acres, and leaving it in, or turning it in very lightly at the period of sowing. But it is considered a great improvement by some, and practised to much extent by Mr. Coke, of the above district, to have it ground by proper mills into a perfect state of powder; and applied at the same time with the feed over it, in the drills or small openings in the land made for the purpose. It is effected by a contrivance of the drill kind, that contains alternate divisions, with small and large cups for delivering the feed as well as the cake into the same drills. The stream of powdered cake is thus rendered constant and regular, the proper cups and funnels being capable of ready application. In this way, it is not necessary to have the cake applied before hand, and a ton is sufficient for six acres, by which there is a considerable saving in labour as well as the material. It is said to answer perfectly in the practice, though some dislike it.

Different other sorts of manures that can be reduced into a powdery state may likewise be employed in this manner, in the growth of this crop, with great economy and advantage in many cases. Malt-dust or combs too, might be made use of in the same way with advantage, though it is commonly applied over the surface in the proportion of about twenty facks, of three bushels each, to the acre.

Sheep-folding, in some districts, is used as a means of providing manure for the growth of turnips, from the effect of first ploughing over the land, to that at which the feed-earth is given. From the treading and consolidating of the soil in such cases, it may however be held only to fold during dry weather, and always to plough over the land in a light manner as soon after the sheep are removed as possible.

The quantity of feed, which is necessary must be different in different cases, as a great deal must constantly depend on the nature and quality of the soil, the period of sowing, and the manner and circumstances under which it is put into the ground. In some good fertilized districts in the southern parts of the country, where the turnip culture in the broad-cast method is carried on to a considerable extent, the quantity made use of is commonly from about one pound to one pound and a half; but on those of a more light, and those of the sandy kind, a pound is mostly found quite sufficient; while on some more heavy turnip soils, nearly two pounds are employed. On the calcareous and loofe chalky soils too, a large quantity of feed is mostly necessary. It is indeed, in common, a good practice in sowing for turnips, not to be too sparing of feed, as the unnecessary plants are readily capable of being removed by the first hoeings and thinnings of the crops.

In the culture of the crops in the ridge or drill method, as is commonly practiced in some northern districts, in consequence of the feed being deep in, it is intended to be sown in a regular and exact manner, and the whole of the land not being occupied by plants, a somewhat less quantity of feed may be sufficient.

As the success in the growth of turnip crops has been found to depend greatly on the quick early sprouting of the feed, and the young plants being expeditiously pushed into broad leaf, it may be useful to have the feed steeped a little in water, or some other liquid, before it is put into the ground, especially in dry seasons; but it must become externally dry before it be fown in all cases.

Soaking the feed in strong lecited oils, and drying it by means of brimstone, have likewise been practiced in the view of preventing the destruction of the crops, but probably with but little success.

The time which is most proper for sowing crops of this sort, must be principally regulated by the intentions of the farmer in respect to the dilpofal and use of them; but for the general more early consumption of them, the most proper season for putting them in may be about the beginning of the month of June; but it is intended that the crops should serve as food for flock in the more early spring months, or at late periods, the sowing should take place proportionately sooner or later. Indeed, where the root is grown on a large scale, it may often be of great utility and advantage, as well as very convenient, to have the times of sowing still more considerably varied; as the crops by such means not only come more suitably in succession to the hoe, but are likewise ready for the purpose of consumption by different sorts of live-flock, at the different periods when they may be most wanted.

In cases where the practice of lamb-fuckling is had recourse to for getting them ready foon, it is essential to have crops of turnips as early as possible, in which intention the seed is to be put into the soil often a month sooner than the above period; such land being let aside for the purpose as is well enriched with manure, in a fine state of tillth, and perfectly free from weeds.

In common, however, early sown crops of turnips are not only left sweet and nutritious for flock, but more exposed to injury from mildew and other cases of the same kind, than those which are sown later in the season; but though this may be the case the sowings in no circumstances should be deferred so long as that the plants cannot have time to fix themselves fully in the soil, and cover it well before their growth is checked and restrained by the coldness of the approaching autumn and winter seasons, as in such cases the crops never answer well for the farmer.

In regard to the methods of sowing or putting this sort of crop into the ground, they vary in different districts, but are chiefly of two different kinds, the broad-cast, and the ridge
ridge or drill. In the great turnip district of Norfolk, and most of the southern parts of the country, it is the most prevailing practice to sow this sort of crop in the broad-cast manner on the level surface: while in the large turnip districts of Northumberland and Berwickshire, where this kind of husbandry has undergone complete change, and in most of the more northern parts of the island, it is more common to have recourse to the drill mode, depositing the seed in rows, either in hollows or ridges mostly raised by one bout of the plough, or in drills on the level surface; at the distances of from twenty-four to thirty inches in the former cafe, as the circumstances of the land and the intentions of the cultivator may be, and from ten to twelve or thirteen inches in the latter.

These different general methods may each of them probably be had recourse to with propriety, success, and benefit under different circumstances and qualities of the soil. As on the light, mellow earthy, deep sandy, gravelly, and other similar sorts of land, which are apt to part with their moisture too quickly, and consequently liable to become too dry and parched for the healthy perfect growth of the turnip, it may be the best and most successful practice to sow in the broad-cast or drill mode on the plain or level surface, as by such means, the moisture which is necessary for the crop, may be more effectually retained in the land for the supply of the plants. And on the contrary, where the lands are of a somewhat more heavy quality, and not so much disposed to part with their moisture, but to retain it in a sort of stagnant state, the ridged-up drill method may be the most suitable and advantageous, as by the mellowness and fineness of mould which it affords, and its tendency to keep it dry and preserve the plants from being hurt by the retention of too much wetness about their roots, the growth and security of the crops will be much promoted. It has a superiority too in some cafes in other ways; as on soils which are rather thin in the staple, this plant, in consequence of its long tap-root standing in need of a good depth of mould, can seldom be grown in a perfect or beneficial manner; by ridging up the land considerable advantage may be gained in providing a more suitable depth of cultivated soil for the plants to grow in, and a better bed for putting in the seed, as the operation has been found to more than double the common depth of mould in some such cafes. The plants in this way grow more strongly, and besides, by the manure being confined to the ridges on which they grow, are less exposed to the atmosphere, and not demanded in so large a quantity, in consequence of which more land may be employed in raising this sort of crop; while by its concentration, and the seed being placed more immediately upon it, the nourishment and means of support to the plants may be more fully and effectually supplied, and a larger produce, of course, be afforded. This mode of sowing may be beneficial too in affording the means of more easily and readily getting up the crops, as food for flock in particularly severe feasons, when cattle off very early in the winter months. It is of importance also in several other circumstances, as the hoeing, working, and cleaning of the land between the rows of the plants can be easier, better, and more perfectly executed, less expert persons can be employed in much of the work, and from the earth or mould being laid up to the plants by the use of the plough or some tool of that kind, the roots of the crops are better protected and preserved from the effects of severe frosts and other causes of injury. They can be raised in this way like-wise on land that has been less prepared and is less dry, as the tops of the ridges are preferred by it in a proper state, and the crops are mostly more abundant in this manner of sowing.

Different objections have, however, been made by some to the ridged or raised drill method of putting in the seed; but the principal of those that appear to have any fort of weight or importance are, that in consequence of the roots of the crops, in such cafes, being more elevated or standing higher, they are, on account of being so much exposed, less capable of standing the severity of the winter season; and that larger spaces or distances are allowed than are necessary for the roots to attain a proper size in, consequently that the quality of produce on the acre will not be so great. Notwithstanding the latter supposition, it is probable, however, that from the nourishment or food of the plants being so greatly increased, and the growth of the crops thereby rendered so much more healthy and strong, the amount of the produce must be increased rather than diminished. Different statements and calculations would indeed seem to shew this to the cafe, and that even a greater weight of turnip is raised on wide intervalled ridges than those that are narrow within certain limits.

It has been contended too, in opposition to the raised mode of sowing, that there is difficulty in restoring the land to the level it was again, and that the ground in the intervals becomes injurious in consequence of the want of moisture; but by forming the ridges in a suitable and proper manner, according as the nature of the soil may be, all these inconveniences may readily be removed. In this intention, it has been advised to form the ridges in diagonal and other directions over the fields, keeping the lands dry. It is further objected to the raised practice of sowing, that in lands of the more heavy turnip kinds, which have little irregularity of surface for taking away moisture when in excess, though larger crops of this root may often be produced, the grounds are so much injured by being poached in getting them off, that the crops of grain or other kinds which succeed them, are lessened in a far larger proportion than it is compensated by the greater value of the turnips. In such cafes and circumstances, it is advised, as more beneficial, to form the land into large ridges, so convex as to throw the wetness quickly into the furrows, as about fifteen feet in width, that a cart may be easily passed along them without prefilling the earth in and obstructing the furrows on the sides, the seed, where the land is different to throw up weeds of the annual kind, being sown in the drill manner on the surfaces without being raised, as by that means the work of hoeing may be rendered more easy and convenient; but where this is not the case, and where the seed is put in at a late period, or the land much infested with the grub, it may be preferable to have recourse to the broad-cast mode of sowing, as being more certain, from the plants being left so much closer to each other at the first hoeings, as to admit of thinning out and removing the bad and unhealthy ones in the succeeding operations of the same sort. Besides, they are supposed to have the advantage of growing more strongly, from the shelter being more complete, and from the ground being left's flourished about them in their early growth, before their tap-roots are sufficiently fixed in the foil to support them perfectly.

It would, however, appear from the success which has attended the sowing and raising this fort of crop in the ridged-up or other drill made in different districts, and from the greater facility and cheapness of performing the necessary after-culture, that it is, in many instances, the most beneficial manner of sowing; but that the nature of the ridges or drills, and the distance of the rows, must often require to be varied according to the quality of the soil, and many other circumstances. See a paper in the second volume of "Communications to the Board of Agriculture," for the
comparative benefits of the drill and broad-calt methods of fowing, as ascertained by experiment.

In explaining the practices which are mostly made use of in putting in turnip crops in the above two different methods, it may be observed, that where the former or broad-calt manner of fowing is in use, which may be proper and advantageous in some cases, as has been just shewn, it is of much consequence to their success, that the more superficial parts of the land be brought into as mouldy and fine even condition as possible previously to the putting in of the feed, and that in fowing, the feed be dispersed over the surface of it in as perfectly even and exact a manner as may be, as soon as it can be done after the ground has been made ready, as upon these circumstances being well attended to, the goodness and abundance of the crops in a great measure depend. An expert feed-man is required for performing this sort of work, but as it can seldom be done by the hand in a suitable manner by persons who have not been long in the habit of putting in small feeds in this way, a fort of box or trough has been invented and constructed for the purpose, which is in frequent use; and when proper care is taken to prevent the perforations of it from becoming obstructed by two or more feeds being fastened in them, it is of great utility in dispersing the feed in an uniform and regular manner over the surface of the land. After this has been properly effected, the feed is mostly covered in, in a shallow manner, by means of harrowing, a light short-tined harrow being used for the purpose, as from the turnip plant forming its bulb in some measure above the surface of the ground, it should not probably be put in to too great a depth in the soil. Some advise the palling of the tool twice over the land only in the same direction, in the first going slowly, and in the latter more quickly, in order to give a nearer finish and finer surface; the ridges having been laid out to the breadth of from four to ten yards, as the land may be inclined to be more or less hilly. This is the Norfolk practice of some measure, and found to be extremely beneficial in many cases of broad-calt fowing for this crop.

In the drill method of fowing turnips, the land, after being prepared in the manner already described, is either formed into little ridges by the plough, and the feed put in, in drills upon them, or these are strick in the level surface, as noticed above; but the first is by far the most common. In the great turnip-drilled district of Berwickshire, the little ridges or drills, in cases where the ground is not well reduced, but remains in rather a rough and cloddy state, are, it is said, formed with the common fowing plough, drawn by two horses, which lays together three or four small rinds or furrow-slices for one fuch ridge or drill. But that the most common and expeditious method of laying up these ridges or drills is by a double mould-boarded plough, which has the boards hung on the sheath with hinges, and which can be fet wider or narrower, as may be necessary. This too is drawn by two horses abreast, and forms two sides of the little ridges or drills at the fame time; the width of the ridges or drills being commonly, as has been seen, from twenty-seven to thirty inches. In cases where the large ridges or lands are not much rounded, the little ridges or drills for fowing on are not laid in exactly the course of them, which is mostly parallel to one or other of the sides of the fields, but are angled a little, for the purpose of having the manure better mixed with the soil, when it comes to be ploughed up into ordinary ridged lands or banks for other crops, after the turnips have been eaten or taken off the ground, as already suggested.

But in another district, where this mode of fowing turnips is largely practised, in the extensive cultivation of the root by some, the manner of performing the work is, after the land has been prepared and made very fine, as directed above, for the ploughman to set up three flarks or poles in a right line where it is thought most proper to begin, and by having the horses yoked double, and driven by himself with cords, these poles are seen between the horses, and by keeping the plough to bear always upon the poles, the first furrow is drawn as straight as possible. In returning, the far-side horse is kept in the new-made furrow, and the plough at such a distance as to form a one-bout ridge or drill in a complete manner, which has somewhat this appearance $\Delta$: by proceeding in this manner over the whole, the land, when finished, displays the forms of alternate little ridges and furrows in this way $\Delta\Delta\Delta$; the distances of which are mostly as stated above, as smaller ones do not admit of ploughing between the little ridges or drills. However, in the practice of the former of these districts, the land when ridged up or formed into narrow raised divisions, the ridges have a left sharp form: thus $\Delta\Delta\Delta$

In the latter of these districts, or that of Northumberland, the next proceeds are those of applying and turning in the dung or other manure into the little ridges or drills, which is effected in this way: a cart goes down every third interval between the small ridges or drills, and lays such matters in small heaps in it; when labourers, as women and children, are ready, and with small three-pronged forks place them out evenly in the bottoms of the three furrows of the ridges or drills; that is, in the one where the matters are dropped, and in those on each side of it. This being done, the ploughman splits the one-bout ridges, and covers up the manure exactly in the middles of new-formed ridges of the farm fort: but before the fowing can take place, the tops of the ridges require to be flattened, which is done by means of a small roller, four feet eight inches in length, and nine inches in diameter, which flattens two ridges at once. On the tops, and exactly in the middles of these flattened ridges, the feed is deposited in small openings, made by one or more drill-fowing implements tied to the roller by a rope of fix or even feet in length, at which distance the roller is followed, the fowing-drill or tools being guided by a man, the work when finished appearing in this form $\frac{d}{a} \sqrt[\alpha]{d} \sqrt[\alpha]{a}$; the letter $r$ shewing the place of the feed, and $d$ that of the substance used as manure. The ridging-up the land, and covering in the manure, are done in the same way as in the first district, by ploughs of the fame kind.

And in the mode of this district, or Berwickshire, the work of manuring and covering it in go hand in hand, and succeed each other as fast as possible; the matters thus used being laid in heaps in the furrows of the different ridges or drills, from the third to the fifth; the distance of from eight to ten feet, and immediately put carefully in along the furrows of them, when a few being completed from end to end, the double mould-boarded plough is used, as before, to split the ridges or raised drills, and cover in the manure, which it does at one bout, leaving the ridge-tops immediately above the manure put in, rather high. These are sometimes here, in some cases and circumstances, a little levelled down before fowing, in a fort of sharp convex manner, by a light harrow run once or twice over them. But the most usual mode of flattening them is by the light wooden roller, as above, to which the drill or fowing-plough is attached, in the manner already seen. Sometimes, however, instead of the roller, a kind of sled, made of wood or iron, is had recourse to in some places, for flattening the tops of one or more
more about ridges; but the light rolling mode is much the neatest, most convenient, and ready manner of executing
the work.

There are different other modes and practices of perform-
ing the business of putting in the feed, in the ridged-up and
drill manners made use of in different places; but as they
are not common, or of much practical importance, they
need not be mentioned here.

In putting in the feed of turnip crops in this way, a great
number of different kinds of drill-owing implements and
contrivances are made use of; but those wrought by horses,
and which are so formed and attached in their different parts,
as to perform all or most of the several operations of the
process at the same time, are, in general, the most proper
and convenient for the purpose. Whatever contrivance of
this nature is, however, employed, it is constantly necessary
to take care that the feed be regularly delivered and put into
the furrow; as from the smallness of the perforations in the re-
volving cylinders of most of them, the feed is liable to be
obstructed in falling, and the regularity of the delivery and
owing thereby prevented.

Every district has mostly its favourite drill-owing imple-
ment for this purpose. In the first of the above, they, for the
most part, make use of a tool of this sort forowing turnips,
which has a cylinder or small barrel of white iron or copper,
and that is mounted on an axle with two wheels. The bar-
rel is perforated with holes at equal distances, and as it turns
round with the wheels, the feed falls equally out, and ex-
actly in a straight line. This cylinder and wheels are fixed
to a light frame-work, which has two rollers, and is kept on
the top of the ridge or drill by them, by a man or boy, who
walks behind, as in managing a common plough. Before
the cylinder there is fastened to the frame-work a fort of
counter, which makes a kind of small rut-like opening for the
feed, and behind is fixed a rake with two or three teeth,
which mixes the feed that is dropped with the mould of the
furrow, and covers it; and as the horse and implement return
by the next furrow or interval to the right or left, the oppo-
site end of the roller rolls the ridge down, and compresses or
flattens the top of that on which the owing implement fol-
lows. When it is necessary to do much work at a time, two
owing tools are had recourse to, which follow the same
roller, and two ridges at once, and the feed is rolled in by a
second roller.

An improved tool of this kind has been invented, which
flattens two ridges or drills, forms the little ruts or openings
on their tops, puts in the feed, and covers it in all at the
same time, by which much faving in tools and labour is made.
It is a very complete implement forowing in the raised
ridge or ridge method. It is made and much used in Ber-
wickshire.

Sometimes the roller used for the feed in these cafes is a
kind of low broad wheel, which is attached to the owing
tool, and rolls only on the track or rut where the feed is put
in, which may answer where the work is on a small scale.

On fine land, fully prepared with reduced dummy matter,
and on which it is considered unnecessary to horse-hoe, a
owing implement of this sort is sometimes used, which is
attached to the common fowing-plough; and one tool follow-
ing the other, the feed is sown in rows, at a regulated dis-
ance and depth. This tool and mode of owing answer
well in such cafes, and are much employed in some parts of
Yorkshire.

In cafes where powdery substances of the rape-cake, or
other such kinds, are to be put in as manure with the turnip-
feed, in this way, a owing implement of this sort has lately
been contrived and had recourse to in some of the southern
turnip districts, with much utility and benefit. It sows the
feed and duff in regular lines and quantities, on two ridges at
the same time, the horse passing in the furrow or interval be-
tween them. This is effected by having proper cups and
funnels for depositing the cake in addition to the other parts,
as seen above. It is a very complete and useful tool for the
purpose.

Where, however, the feed is to be sown in the drill man-
nery on the level surface, without its being raised in ridges, as
is the practice in some districts, especially when formed at
narrow distances, as not more than twelve or thirteen inches
apart, the larger contrivances of this sort, which sows a
number of rows or drills at the same time, may be the most
proper and advantageous, as being more quick in performing
the work. There are many other implements of the same
kind, which are useful, and suited to different cafes of owing
in this way. See Turnip-Drill.

In whatever manner turnip-feed is put into the ground,
experience has shewn that it is of much consequence to have
it done in such a way, and under such circumstances, as
that the germination and early growth of it may be in as
ready a manner as possible, as upon this a great deal in the
goodness of the crops depends, as has been already seen.
It has been supposed by some that the feed, in order to se-
cure these effects in the most certain manner, should be put
into the soil to the depth of three or more inches; and that
the superiority of the drill method of sowing partly arises
from the feed being placed to a greater depth, and growing
more rapidly, on account of having more moisture, so as to
have the plants become sooner out of danger from insects, or
other such causes of destruction; while others think, from
these circumstances, that it should be covered in only in a
light manner.

A late able practical writer, however, suggests, that as
air is necessary as well as moisture to the vegetation of feeds
when placed in the ground, it would seem probable that the
quick sprouting and growth of such crops may be the best
and most effectually secured, by only putting them into a
middling depth, and according as the particular nature of
the land, and state of the soil may be, as from an inch and
a half to about two inches, as the soil or seed may be in-
clined to be wet or the contrary. In this way, it is be-
lieved, the inconveniences arising from the feed being too
much parched and dried by being exposed near the sur-
face, and from the want of the action of the air on account
of its too great depth, may be equally avoided. As crops
of this sort are, for the most part, put into the earth during
the hotter months, there is another circumstance that may be
of equal consequence, it is supposed, in promoting the
quick shooting and growth of the young plants; which is,
that the feed, especially in such hot seasons, will imbue
with moisture by soaking it, and consequently with the oxy-
gene principle of the air, as already suggested, before it is
committed to the ground; as by such means, there will be left
required to be drawn from the mould of the furrow which fur-
rounds the feed, and the processes of vegetation almost imme-
diately takes place. Sir George Staunton, in his account of
the "Embassy to China," as well as Mr. Gillet, in the
"Bath Papers," have likewise ascribed the preservation of
turnip-crops in that country as well as this chiefly to this
practice; and by it good crops of this sort may often be pro-
duced, where they would otherwise almost wholly fail. And
the correctness of the practice and principles on which it de-
pends, is further supported by the success of the general cus-
tom of putting in these crops on the moist, new or fresh turned-
up mould. Some interesting and useful observations and
experiments on the shooting and growth of turnip-feed, may
be
be seen in a pamphlet "On the Failure of Turnip-Crops," by the Rev. H. B. Stacey, but which we have not room to introduce here.

After-culture of the Crop.—It is of much consequence in the production of good crops of this fort, to have this part of the culture of them well performed, and at such times as are most suited for promoting the growth of the young plants, as well as preventing those of the weed kind from rising and injuring them by the shade and obstruction which they produce; as without considerable attention to these respects, the labour and expense employed in preparing the land, and putting in the crops, must, in a great measure, be thrown away. From the want of a sufficiently adequate re-turning, this end is often not accomplished. This is usually accomplished by means of the hoe, in some way or other. Where the crop has been put into the soil in the broad-cast manner, the hand-hoe only can be made use of for the purpose; but where the feed has been sown in rows by the drill, or in other ways, and a sufficient space of interval allowed, those of the hoese kind may be employed, either alone, or in addition, after the plants have been properly set out in the hand manner, to suitable distances.

It is the common practice, when the plants have produced four or five leaves, or when they cover a circle of three or four inches in diameter, which mostly happens, in favourable seasons, in the course of about a month or six weeks from the time of the feed being put in, to begin the different operations in this fort of work. In the first of which, such plants as stand too close are to be struck out, to leave the others at a suitable distance, according as the circumstances of the feason, the nature of the foil, the period of fowing, and the use to which the crop is to be applied, may be. When the feason is hot and dry, the striking out of the plants in the firft hoese should not, however, be fuch as to leave them at too great a distance; as by keeping the remaining plants pretty clofe together, the moisture may be better preserved in the land, and the crop rendered more fecure; but in rich soils, when early fown, and when intended to be continued by flock at an early period, a greater striking out of plants at first may be advantageous.

In the practice of some, the moft ufual custom is to leave the plants in the firft hoese at the distance of from fix to eight inches from each other, but others prefer a fll greater distance. In the second hoese, which should be performed in the course of about a fortnight, or three weeks, from the firft, according as there may be a neceffity, the plants that are to remain for a crop may be left at the distances of from eight or nine to twelve or more inches in the broad-cast practice, and at those of from nine or ten to fifteen, or a greater number, in the rows where the drill method is employed.

In these second hoesings, the mould between the plants should always be well firred, in order that it may be rendered perfectly mellow and well aerated, and any weeds that may have rifen be effectually destroyed. The future hoesings that may be neceffary in crops of this fort are to be regulated by the particular circumstances of the fields; but the mould should never be allowed to become too thick and compact about the roots of the plants, or any weeds be suffered to interfere with them.

It is the practice in some places, especially with the broad-cast crops, to pass a light harrow over the land once in a place, as soon as the plants are sufficiently strong, in order to render the first hoeding more effectual; and even in particular cafes, where they push forward rapidly, it is made use of after a second time in the contrary direction. In performing the work, however, great care is neceffary, particularly when the plants are thin upon the ground, as otherwise too many of them may be dragged up, and the crop be much injured from the want of a fufficient plant.

In the ridged crops in the latter of the above drilled turnip districts, it is the practice, when the plants have got four leaves, to begin to hoe, leaving the plants at only eight or nine inches distance in the rows; and as they have to much room sideaways, or from row to row, the hoers go in that manner and pull out the surplus plants, weeds, and other matters into the furrow or hollow space between ridge and ridge, and the turpis plants are let as regular as if they had been planted out with the greatest care and exactness, the work being performed by women and children at but a trifling expense. After this, when the plants left have perfectly recovered and established themselves again in the foil, as is mostly the cafe in about eight or ten days, the earth is taken from the rows where the turnip plants stand, by a light plough contrived for the purpose, and turned upon the pulled and struck-out plants and weeds left by the hand-hoers, in the furrows or intervals of the ridges, and when they have once more recovered themselves from this part of the work, and are become again in a vigorous state, or when other circumstances render it neceffary; the mould, which was in the former process turned from the turnip rows, is now divided and laid up equally to the different rows by the fame tool, or a similar one with a double mould-board. By these means, where the land is clean and free from weeds, the work is completed; but when the contrary is the cafe, additional hoesings and ploughings are given, according as the state and other circumstances of the land may be.

But in the former of these districts, where the horse as well as the hand methods are had recourse to, they proceed in a different manner. In the former or horse mode, when the turnip plants are from one to three or four inches high, or when weeds begin to appear, a small light common plough of the swinging kind, drawn by one horse, goes along one side of the ridge or drill, and turns off the earth from the young plants, and returns on the other side, doing the fame, leaving the plants standing on sharp ridges. But sometimes, instead of this plough, the work of turning the earth off from the different sides of the plants on the ridges is done by a tool of the fame nature, mounted with two sharp coulters, which cut or pare from both sides at once, and which on smooth fine land performs the work equally well and much more expeditiously. It is indeed an excellent tool for the purpose, when properly formed and made use of in the work.

In the latter or hand method of hoeding, which is had recourse to two or three days after the earth is turned off from the plants, the hoers go to work, making use of a hoe of from five to eight inches in breadth, and at one stroke of the foil, cross the ridge, cut out the weeds and unnecessary turnip plants, and leave the crops sufficiently thinned and let out for air.

When the crop has been hoed and hand hoed in this manner, the field is left in that state for ten or fifteen days, and if weeds grow fast, the fame work is repeated. In ordinary circumstances, the whole work of hoeding and hand hoeding only costs about 7s. the acre.
TURNIP.

It has been suggested by a large cultivator of this fort of crop, that these advantages may be equally well attained, and with more success and less danger and inconvenience, by means of paring only one side of a ridge at a time, leaving the other to be performed some time afterwards. It is thought too, that this practice of paring one side only at a time with a single plough, and leaving the other untouched for several days, has many important ufses and some superiority. The tool, in this manner, is capable of going nearer to the plants; the drought has not so much imprefion on their growth; and the land has more benefit from the atmosphere by being flurred at different times, than when the mould is directly thrown into its first bed, as in the common manner.

In this mode of proceeding, the work is reversed at times in an alternate manner, and continued as long as a paflage is allowed to the plough by the flemes of the turnips; and they are never set up at all.

Much advantage in the hocking of turnip crops may often be gained by having the feed plow in at different times, as by this means fix labourers have been found capable of performing the work twice over more than one hundred acres, while in the contrary circumstances, a much larger number is always necessary for the purpose. See Hocking.

In the hocking culture of turnips, many different tools of different forts are in use; but in the horfe method, the work can be well and correctly performed by any light small plough. In this work, some one which is about five inches in width at the bottom, and eleven at the top, which answers well for working the intervals of the drills or ridges. But in letting or earthing up the rows, one of the double mould-boarded fort is probably better, as being more expeditious and convenient. Improved tools of this fort have been contrived, with coulers that are moveable, for cleaning these crops, which by their capability of being readily set to different distances, fo as to fit the different widths of the rows, not only perform the work of paring off and removing the earth from the different fides of rows at one operation, but which, by having their earth-boards fo attached, as to be set differently as to width, effect the work of moulding up the plants. In managing the bufh-nea by this tool, there is evidently not only an advantage in double the quantity of work being performed, but in the different operations and proceedes of it being effected in a more correct manner, such as that of flurring the mould in the intervals of the ridges or drills, and the application of it to the flemes of the young plants on or in them. For these purpofes, the tool of this fort, which has lately been invented by Mr. Waifall, may also be found very ufeful in different cafes. See Turnip-He.

In whatever way the work may be performed, or whatever tool may be employed for the purpofe, it will always be of great utility to have the earth and mould well loosened near to the roots of the plants, when they are iff in any way, and to have all weeds well cleared out from about them.

Dangers to which exposed.—Turnip crops are liable to danger from different caufes during the more early ftages of the Growth of the plants, but the principal of them are thofe of the attacks of the fly, the flug, and the black caterpillar.

The fly chiefly preys upon the sweet tender feed-leaves of the young plants, and its preffure is rendered sufficiently evident by its leaving many little brown spots on them, and by its eating away their flehy green parts down to the fibres of the leaves. It is faid to increafe in fize, and the number to become larger, until the plants be wholly de-

froyed. It is fuppofed by fome, that from these infects being extremely numerous on fuch leaves of turnip plants, and not eating, but, as it were, fucking their sap or juice through long proboces or organs, that ferve to attach them to the leaves in somewhat the manner of leeches, they may, in fome measure, be the caufe of the very slow progrefs that is fometimes made in fuch plants to put into rough leaf.

The ravages of the flug are readily ascertained by looking to the edges of the leaves, as it begins firt to feed upon them, gradually afterwards proceeding from one part of them to another, until each is more or lefs consumed, fometimes exhibiting in the whole of the crop a partially eaten flate. In many cafes, almost the whole of the plants is destroyed.

The depredations of the black caterpillar mofly take place after the crops are in a more advanced flate of growth, and the plants have formed confiderable tops, and are in what is ufually termed rough leaf; the green parts of the plants being eaten through and deflroyed, consequently the growth of the plants greatly retarded.

A great many different practices have been proposed and had recourse to at different times, for guarding against the defftruction produced in these ways, but hitherto probably without any great success in eftectually preventing it. In this intention, the blending of new and old turnip-feed togethe, or fuch as has been moistified, and fuch as is dry, and uifing them as feed for raising the crops, has been ad-vised by fome, as by this means the plants, as crops, coming up at different times, may be lefs in danger of being wholly deffroyed, or may eflape in fufficient quantity for the purpofe, especially as fuch infects are well known to frequently make their attacks suddenly in large numbers, deflroying the plants as they rip, and as suddenly disappearing again, leaving those that come a few days afterwards untouched.

On the fuppoftion that other forts of plants are more defirable and liable to be fed upon by this defftructive infect than that of the turnip, the old practice of mixing and fowing other kinds of feeds with turnip-feed, as thole of the radifh and fome other forts, has lately been revived, and much extolled by different perfoas, but probably the method is extremely uncertain, as it cannot be fuccesful, except when the different kinds of plants rife pretty exactly at the fame time, which, from the great difference in the vege-tative powers of different feeds, will rarely be the cafe. Any ufe that can be gained in this way, must probably be by employing the feeds of fuch preferred plants, as are rather more quick in their proifuting and growth than thole of the turnip, as, where this is not the cafe, the turnip plants may often be deffroyed before the others are in a flate to be fed upon. The difting of the leaves of turnip crops over with caulfic juice in the flate of fine powder, has been tr.id, and found uifeful in faving them in fome cafes. The fame fubfance, as well as thole of vegetable alhes and foot in their reduced flates, when uifed by being thrown over the crops by the hand in pretty large quantities, have likewife occasionally been uifed with benefit against this infect as well as the flug. The sprinkling of tobacco-water, either fimpdy, or in mixture with fop-puds and urine by proper means upon the plants and land, has been found to deffroy the flags in a ready manner and to prevent their increafe. Heavy night-rolling has long been practiced with upposed succes against both the fly and the flug. And the practice of treating with sheep, by keeping them in conflant motion on lands cropped with turnips, as well as that of fowing barley-chaff over them, has been thought
thought useful against the latter. This last, as well as the tobacco mixture, has been tried with benefit against the black caterpillar, a huff-harrow being previously pulped over the crop to dislodge the insects. The harley-chaff is to be applied over the crop on their first appearance.

A great variety of other means has been proposed in these intentions, but probably with no very great success. See Black-Canker, Slug, and Turnip-Fly, Prevention of.

In turnip crops, the roots of the plants are liable to have a large fort of excrecence formed below the small apples or bulbs, which, after becoming in a state of something like maturity, takes on the putrid process, and tends for a most offensive smell. Plants in this condition are generally flung to in their growth, and the crops indifferent. It is laid to depend on soil, and that the soils of some turnip districts are subject to it until they have been clayed or marled, which is almost a certain remedy for this. It is the case with Norfolk; the soil is perhaps too light. The knobs often contain a small worm in the centres of them, which may be the cause. Taking out the affected plants and stirring the earth about the others may be useful. See Anbury.

On some thin light soils too, especially in dry seasons, these crops are sometimes liable to be affected with a fort of white mouldy blate, which injures and checks the growth of the young plants greatly; the chief means of removing which, is that of proper thinning and stirring the mould about the roots of the plants. When it occurs in deeper soils, benefit may be derived from rendering them more dry by deeper furrowing between the ridges. See Mildew.

Turnip-plants often hang off numerous thinning roots with knobby lumps at the ends of them, which are liable to decay and come to nothing, or what farmers term fringes, in the state of battling or forming bulbs. This mostly happens in new or fresh land, and with no mode of preventing it has probably yet been discovered. Utility in such cafes may, however, be derived from better tillage and preparation.

Where these crops have been destroyed by the fly, or in other ways, the same lands should not be resown without a flight ploughing, as it is too often the practice, as there must always be great danger of the crops of the second sowing in such cafes. It is better either to leave the land wholly for wheat, or to give a shallow ploughing or scuffling before the turnip-feed is again put in. Transplanting is laid to have been employed with benefit in such cafes, as the young turnip plant is found to succeed in this way.

The seafon most favourable to crops of this sort, are those in which the weather is warm and flowery, without much continued rain. In the autumn and winter periods, when the changes from frosts to thaws are frequent with rain, the roots are liable to much injury, by becoming decayed and rotten; and where they stand well in them, seldom afford the quantity of nourishment and support for flock that may be fed on them that is usual under other circumstances. They are liable too to be much hurt in the winter seafon by the wounds and punctures made in them by different forts of birds, as wood-pigeons, rooks, and some others; against which they should be guarded as much as possible.

The expenses of raising crops of this sort must necessarily vary considerably according to the nature of the soil, the crops which they succeed, the methods of putting them into the ground, the situation, and many other circumstances of different kinds; but in the ridge or drill practice, they may in many cafes stand in this way.

<table>
<thead>
<tr>
<th>Expenses per Acre.</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ploughings, three at 8s.</td>
<td>-</td>
</tr>
<tr>
<td>Harrowings, ditto at 4s. 6d.</td>
<td>-</td>
</tr>
<tr>
<td>Cleaning by hand-picking</td>
<td>-</td>
</tr>
<tr>
<td>Making up ridges or drills</td>
<td>-</td>
</tr>
<tr>
<td>Manure and labour, half allowed</td>
<td>-</td>
</tr>
<tr>
<td>Covering up ridges or drills</td>
<td>-</td>
</tr>
<tr>
<td>Seed</td>
<td>-</td>
</tr>
<tr>
<td>Sowing by the drill</td>
<td>-</td>
</tr>
<tr>
<td>Horse-hoeing twice</td>
<td>-</td>
</tr>
<tr>
<td>Hand-hoeing once</td>
<td>-</td>
</tr>
<tr>
<td>Earthing up rows</td>
<td>-</td>
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</tbody>
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\[
\text{Total Expenses} = 5 10 4
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In the broad-cast practice, the expenses may modify perhaps a little lower than in the above estimate.

It is in most cafes the practice to sow barley after turnip crops, but in some northern districts, wheat, and other crops with seeds, are occasionally put in after them, when fed off with sheep, and cleared early and one ploughing.

The quantity of produce or food for flock which is afforded by crops of this sort, must, of course, differ much according to the differences of season, the nature of the soil, and the mode of culture that is pursued; but a medium crop, where the land is good and suited to the purpose, may afford fifteen tons or more on the acre; in many cafes, however, it will be much less. The value of such crops must depend upon many different circumstances, as their quality and abundance, the manner in which they can be consumed, as on the land, or in cribs and halls, in feeding or rearing live-flock of different sorts, and on the state of the market for the sale of such flock; but in common, it may be from about three or four to fix or seven pounds of the acre, and in some cafes considerably more, as ten and upwards. An acre of good turnips will fatten a beast of forty stone and more, or about eight sheep.

**Seedling Crops.** — In raising crops for feed, which is the produce of the second year's growth of the plant, considerable attention is necessary in the view of producing such as is good; as when it is collected from such crops as have been sown three or four years in succession, without transplanting, the roots are liable to be numerous and long, and the necks, or parts between the bulbs and leaves, coarse and thick; and when taken from such as have been transplanted every year, these parts are apt to become too fine, with too great a diminution of the tap-roots. The belt and moist certain way is, therefore, to take seed from turnip plants that have been transplanted one year, and sow the next; or transplanting once in three years is sufficient for preserving it good. The moist suitable manner of performing this is to select such turnips as are the hardest, the belt of their kinds, and that have the most perfect forms, from the common crops; and after cutting their tops off, to transplant or remove them, in the latter end of the autumn, into ground that has been well prepared for them, where birds can be kept off. The seed will become ready for gathering towards the close of the ensuing summer. Some prefer that the seeds taken from a few roots, transplanted in this manner, should be preferred and saved in the drill method, for the purpose of providing plants for affording feed for the general crops, taking out all such as are weak and improper, leaving only those that are strong, and which have the belt growth; and that when these have unripe, or formed bulbs, to again take out such as do not appear good and perfect; and, by this means, turnip-feed may be procured.
procured, which is not only of a more vigorous quality, but which is capable of vegerating with less moisture, and which produces stronger and more healthy plants, and, of course, better crops. The custom of transplanting the whole of the turnips in this intention is said to be too expensive, as well as injurious in some respects.

In either of these modes very good turnip-feed is capable of being railed and provided. When the feed, in these cases, is become fully ripe, the crops are mostly reaped by cutting part of the stems with the feed-pods upon them, afterwards tying them up into wads or sheaves, which, when properly dry, are carried and put into long narrow flacks, to be kept through the winter, and threfhed out near the time when wanted in the spring. As in this way, however, much feed is liable to be fed and lost, on account of its residuas to escape from the pods in which it is contained, it is probably a much better practice to have it immediately threfhed out, either upon a cloth in the place where it grew, or in some other more convenient spot, being then put into proper bags, and placed in a situation which is perfectly dry.

As crops of the feed kind are subject to injury and loss in many different ways, the quantity of produce must be different under different circumstances; but it may be said in common to be about twenty or twenty-four bushels on the acre. And as the price of turnip-feed is seldom less than seven or eight shillings the bushel, from the great demand for it, the culture may seem at first to be very beneficial; but from the exhausting nature of the crop, the loss in that of the grain, and the quantity of manure afterwards necessary, it is probable that turnips can only be fed with advantage in particular circumstances of soil and situation. As often as possible, however, the farmer should raise his own, as that of the shoppas is in general less to be depended upon.

**Application and Use of the Crop.**—The turnip is a plant or root that is capable of being made ufe of in different intentions, but the principal are those of feeding, supporting, and fattening different forts of live-flock, in which there are great differences in the practices of different districts of the kingdom; but the most economical and beneficial modes of applying and confuming it, under different circumstances of soils, situations, and animals, have probably not yet been sufficiently investigated and ascertained from what engaged in the cultivation of the root. It is flated by a practical writer, that though few trials have been made to determine the particular flatte or condition in which these roots afford the greatest and most suitable proportion of nourishment for different animals that are fed on them, it would seem, from their containing a much larger quantity of rich nutrient matter in their fresh flatte, before being taken from the ground, than afterwards when removed and packed up, as shewn by the shrinking and lofs of weight that takes place, to be a more saving and ufeful practice, particularly where the nature and situation of the land and feafon will admit of it, as on dry lands in moft of the southern parts of the country, to confume them under the former rather than the latter circumstances; but in more cold and expofed situations, as in many places in the northern districts of the kingdom, and wherever the lands are inclined to moiture or heaviness, as the roots may be greatly injured by frosts and other causes, and the animals receive much harm from the coldness of such places, while feeding on them, as well as the lands be much damaged by their treading, it may be better to eat them under the latter conditions. There are likewise other situations and circumstances, it is supposèd, in which it may be particularly necessary, as well as bene-

**TURNIP.**

Wherever crops of this sort are, however, taken from the land, to be consumed by animals in other places, as from their nature and large growth they must exhaust and deprive it of its fertility greatly, it will conffantly be proper and necessary to return an equivalent in manure, otherwise the harm done in this way may more than equal the benefits of the crop. And in all such cases, the tap-roots and other waste parts should always be removed and left on the land, that neither foil nor manure may be taken away, by adhering to them.

In cases where the lands are properly dry, in a high state of fertility, and under good management, it may often too be an advantageous and economical practice to have a partial recourse to both the methods, by having one part of the crop drawn, removed, and eaten off the land, in some adjoining convenient place for the purpose, and the other fed off on the field where they grow; as, by such means, a much larger quantity of land may be benefitted and improved, without injury to the crops that may afterwards be grown on the turnip land.

In this mode of improving lands, a great deal more is yet probably capable of being done than has hitherto been the case, when its vail utility and powers in different ways are fully considered.

Some difference in the ufe and manner of confuming this fort of crop likewise takes place, from the kind of flock to which it is applied; as when used in the rearing, keeping, and fattening neat-cattle flock, it is, for the most part, pulled up and eaten, either or having been removed to some proper dry field or spot of ground of the graps or flable kind, or to some feld or other building near the straw-yard or feeding-house; in the latter case, being given the flock in bins, troughs, or cribs, or placed before the heads of the cattle in flats, when tied up, that are contrivèd for the purpose. The latter of these two modes of eating the root is supposèd the better, though lefs frequently made ufe of, as there is the lealf possible waste, while, at the fame time, the dung and urine of the cattle are the most extensively and effectually confumed. In the former of these methods, the usual practice is firft to admit the fattening flock, and then to allow the lean to follow them, and cut up what may remain. In this way there is the lealf loss.

The cattle are mostf frequently used when the roots, except when prevented by the state of the feafon, when they are confumed in other places, or as above. In some cases, the lands to which the roots are removed, in this method of feeding, are those intended to be used for other crops in the ensuing year, by which the different fields, of course, in their turn, have the benefit of being improved in this way moft conveniently; and the practice is found more ufeful than feeding them on the land where they grow. The roots, in these cases and modes of confuming them, should not be scattered over the ground in too thick a manner; as, where that is the case, much lofs mutt necfarily be fustained by their being crushed and bruised by the feet of the flock, while upon them.

Thfe several different practices are much had recourse to in fome southern turnip districts, where great numbers of different forts of this kind of flock are every year fattened on turnips.

In cases where milk is a principal object with the farmer, this plant and root are also capable of great ufe as a proper juicy food for cows, care being taken that the decayed

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leaves and other parts be not given, as they are apt to communicate a disagreeable flavour to it. The offal produced in such cafes may be given to the dry flock, by which little or no loss will be sustained in the consumption of the root. This taste in milk is said to be completely removed by the use of a very weak solution of nitre in water.

These roots, too, have been usefully applied in the feeding of work-horses, as by their means the usual quantity of corn may, it is said, be lessened nearly one-half, and the horses rife in condition at the same time, as well as perform their labour equally well, and be more free from bowel complaints than in the common manner of feeding them. When used in this way, they should, however, be chopped, and have dry food of some sort joined with them in proper quantity.

The most extensive use and application of this crop is, however, in its consumption by sheep, particularly where the more suitable improved fats prevail, in which the most general practice, where the lands are properly light and dry for the purpose, is that of confining them upon a suitable proportion of the crop by hurdles, or other means, and removing them to fresh parts, portions, or breaks, as they are sometimes called, every eight or ten days, or oftener, according to circumstances, or as the spaces may be eaten and cleared by the flock. Where the crop is used as that of corn, the former bands, the former confined in this way, and the latter left at liberty, as feeding more readily in this manner. But where the soils are of a more deep and heavy retentive quality, it is more usual, and a better and more beneficial method, to have the roots drawn and removed, as wanted, to some adjoining field to be conserved by the sheep, somewhat in the way noticed for cattle; as, in this manner, there is not only less injury and waste by feeding and treading the turnips into the ground, but the sheep get a more certain and regular supply of fresh roots, by which they do better, and the shales, being kept clean, are more fully and completely eaten up by the flock cattle that are afterwards put upon them for the purpose. In some cafes and flats of the land too, in the former mode, it is the practice to have the crop partly eaten off on the land on which the turnips grow by sheep, and partly drawn and removed, to be conserved in other places. In such cafes, the method is usually to turn the sheep upon them as they stand in the field; but, except the bulbs be much exposed above the soil of the land, it is probably a better practice to have the roots pulled up on the ground before they are turned in and confined on it, as in this way they are not only less apt to break and fill the turnips, but feed and fatten much better upon them. This practice is much in use in some southern districts.

In some situations, the hilly parts have the turnips fed off in this manner by sheep, with a certain quantity of hay allowed for every acre thus eaten off, beginning with a break or portion from the lowest part of the field, and allowing a new portion or break every day, still gradually rising, clearing the whole off in time for preparing the land for the following crop. The crops on the more flat and heavy parts of the lands are drawn and removed, to be eaten with hay or other dry food in proper places.

It has been suggested, that much loss is often sustained in these modes of feeding off turnips by folding sheep upon them, particularly where the crops are raised in the broad-cut manner, and it is the custom to give the sheep large felds or breaks at a time, in confluence of frost or snow taking place. In such cafes, it is supposed, the ridge or drill method is far preferable, as it is easy to have the pens or trays made and fixed in such a manner as to constitute a fort of moveable crib or trough, the bars being set near the

fides of the rows, and the boards from ten to twelve inches in breadth, having flakes of suitable lengths, as the depth of the foils may be, nailed to them, and secured on the fides from which the sheep feed. The narrower the spaces the turnips are included in, the better. As it may be imagined that the animals may get in among the turnips so fenced off, it is said that, supposing the roots may occupy a regular space of about twelve inches, the troughs may be made little more than a foot in width at the bottom, having a flopping direction upwards. The bars may likewise have an inclination towards the sheep, and hang over the troughs or the parts in which the turnips are inclosed, and thus prevent them from getting in. It is supposed that in this way the sheep will have their food quite clean, and that by setting off only at a time the quantity necessaary for a day, they may eat it with more avidity, and without the danger of spoiling so much by their discharges, as is moaily the case in the common circumstances of feeding upon the root.

On examination, it is contended that this mode, when even largely employed, will be found to be better in many respects, as well as a great deal cheaper, as, on the most moderate calculation, three sheep may be kept in this way to two by the common old method, or perhaps even double the number, and they will fatten much sooner. And on the other side of the account, this last time may be turned into the advantage of the inhabitants, as it is thought that if the sheep, in such cafes, were driven into the straw-yards for the night, and even to eat straw in the morning, they would retain the turnips longer, and fatten quicker; while, in the mean time, the persons employed in looking after them might move the hurdles a row further, and thus little time be lost. If both fattening and f more sheep should be kept in this manner, it would be proper to give the feeding flock rather more roots than are sufficient for the day, and to turn in the f more sheep the succeeding day to consume what may be left. In this mode, the length of turnips that may be necessary, without wasting being committed, may soon be discovered. It would seem, however, that from the constant trouble, difficulty, and expense of the plan, in providing hursles, and fixing them for the folds, they would render it incapable of being put in execution, except in cafes of a small number of sheep, where it may be an improvement, and a more economical manner of feeding off turnips crops by such forts of flocks.

In the practice of feeding off this purpose, great attention is necessary to see that the hurdles are at first well let into the ground, and secured by flakes of sufficient length, with proper withs for tying them together, as after frosts and thaws, or snows, they are very apt to be thrown down by the wind, and other causes. The beft fort of hurdles for this use is that of the flatted kind; and a material of the netting kind is sometimes employed, which is called tailings, but it is more expensive. See Hurdle.

In whatever manner the feeding off turnips by sheep is done, the hurdles should always be set in such directions and forms, as that labour and expense may be saved as much as possible.

In some districts, the practice of feeding off these crops in a partial manner, or that of pull and throw, has given way to that of consuming them wholly upon the land, from the full conviction of its greater utility and profit; while in others, the mixed method of eating the root is still had recourse to, as being preferable for the purpose, and affording more benefit.

As it is found, in the fattening of sheep on this crop, that they make the greatest progress just before the turnips begin to run and form their feed-items, which is supposed
The only perfectly secure mode would be that, probably, of having them drawn, topped, and piled up with layers of dry straw in houfes properly formed and constructed for the purpose, and conveniently situated for the sheds and other feeding places; but it would be liable to objection, except on a small scale, as being both troublesome and expensive.

A method of preferring this root, which is much in use, very effectual, little expensive, and attended with no great trouble, is that of drawing and piling the turnips up in different portions on the field where they are raising, with layers of dry straw put between each of thofe of the turnips. In this mode, which is much practifed in fome fouthern counties, a load of straw is used to about thirty or forty tons of the turnips. The manner of effecting the work is faid to be this: the turnips, on being drawn in a dry time, and the tops and tap-roots removed, a layer of straw is spread out on a dry part of the ground, and a layer of turnips placed upon it to the thicknefs of eighteen inches or two feet; after this another layer of straw, and then a layer of turnips; proceeding on, alternately in the fame manner, until the pile or heap be brought to a fort of ridge or point; when the edges of the different layers of straw are turned up and fainted, which ferves to prevent the roots from falling out, and at the fame time affords a fort of external covering to the heap or pile, which is completed by well thatched over the top with long straw.

It is fuppofed too, by fome, that the difficulty of getting them out of the ground, and the dangers they are exposed to in fevere froifty feafons, as well as the inconvience the flock experience in feeding upon them from their coldnefs, and the hazard of their injuring the land by remaining too long, may all be avoided by piling them up in a familiar manner, in small heaps in the flack form, the tops outwards, near to the places in which they are to be confined, covering them over with waffles or hurdles lined with straw.

In fome cafes, turnips have been attempted to be preferred by being formed, without straw, after the tops and small roots have been taken off, and the former used green, into a fort of heaps termed pier, in the manner in which potatoes are sometimes kept, being well thatched over on the outsides by straw or fome other more cheap material.

They have been attempted to be preferred in the field by covering them by deep ploughing in different manners, when perfectly dry.

A great many other modes of preferring these roots have likewise been fugged and practifed by farmers and others, but they need not be noticed here, as they moftly appear lefs ufeful than the above.

In all cafes of preferring these roots in the heap manner, care must be taken not to have them made too large, or too confantly packed up together, as the danger of their heating and being spoiled, may thereby be, in a great meafure, avoided.

By fome means of these forts, turnips may moftly be preferred, kept ready, and fit for ufe as food for live-flock, even in situations and feafons which are the moft exposed and severe, which under different circumstances are often matters of much confequence to farmers. See TURNIP, supra.

TURNIP, Swedish. See RUTA BAGA.

TURNIP, Stubble. See STUMBLE-TURNIPS.

TURNIP-Cutter, or Slicer and Chopper, contrivances of the cutting kind, which are made ufe of in preparing this fort of root for being eaten by different kinds of live-flock. Implements of this nature are formed and constructed on very different
different principles, but those which have the greatest simplicity are almost always to be preferred, as performing the work in the most easy and ready manner. There is a very useful tool for this purpose, in which the roots are cut by means of a knife fixed upon a fly-wheel, the turnips being forced upon it through an inclined hopper or fort of trough. Some turnip-slicers are so effective as to cut a bushel of the root in a minute.

The chopper is made by a fort of sharp small spade, either fixed or loose, working in a box, into which the roots are thrown for being cut or chopped. The work is readily executed in this way by those who are in the habit of performing it in this manner.

**Turnip-Drill**, that fort of drilling implement which is employed in the fowing of turnip-feed in the row manner. An improved tool of this fort for one-bout ridges is in use in some districts, which obviates the defects of fowing too much or too little feed. It consists of a solid cylinder, made of iron or brass, about two inches in diameter, and one inch broad, on the surface of which are formed fifteen or sixteen cavities, resembling the shape of a semi-egg when cut longitudinally, and as deep as to hold four or five feeds each. On the back of the cylinder a little from the top, is placed the hind part of the hopper, to which is fixed a piece of iron or brass, one inch long and half an inch broad, hollowed on the inside in the form of a Gothic arch, the sides of which meeting the sides of the cavities in an oblique angle, prevent the feed from being bruised; at the lower end of this piece of iron, or gatherer, there is a slit, three-tenths of an inch long and one-tenth wide; and at the back of it, a thin flat piece of iron moves up and down by means of a ferew at the top of the hopper, which enlarges or lessens the orifice directly above the cavities, and increaseth or diminiseth the quantity of feed delivered, as the workman may think proper. This slip of iron, or regulator, is let into a groove made in the board, which forms the back-part of the hopper. The cylinder is fixed, before the cavities are made, on an iron axle one inch square, turned very true, as well as those parts of the axle which turn in the collars fixed in the handles. To the ends of the axle are fixed two wheels, twenty-six inches in diameter, which turn the axle and cylinder round, and which, in passing through the hopper containing the feed, bring forward in each cavity a number of feeds and drop them into the spout, by which means they are conveyed to the couler, which forms a rut or channel on the top of the one-bout ridge in order to receive them. If the cavities in this fowing implement be made to hold five feeds, when the regulator is ferewed close down, and there be sixteen of them, it will deposit eighty feeds each revolution; and from the diameter of the wheels being twenty-six, and the circumference eighty-one inches and a half, eighty feeds will be fown in eighty-one and a half inches, or nearly twelve feet. This being the minimum quantity, by screwing up the regulator, the number may be increaseth gradually to fifty or sixty in a foot, which is far more than is necessary in almost any cafe.

There are various other improved implements of this nature, which suit different purpoeses of this fort of culture made use of in different circumstances and places. See Dril and Turnip.

**Turnip-Hoe**, a hoe employed in the culture of turnips, which is of the hand as well as the horse kind: the latter is the most ready and effectual, but both are frequently made use of in raising the crops.

A turnip-hoe chopper has lately been contrived, which is both useful in this way and for cutting the roots in feeding flock on the land. It has in the first part the make of the common nine-inch hand-hoe, but forming an oblong square, with an eye to receive the handle from the centre of the first part or hoe, another crosses it at right angles, but this second is not made solid, as in the first common one, but, like the Dutch-hoe, the centre part is open the whole length of it. In working, the turnip being pulled out of the ground by the angles of the hoe, is immediately struck with the centre, which divides it into four pieces, and if these be not small enough, the stroke is repeated upon each of the pieces until they be sufficiently so. It is imagined capable of much improvement, by having two floutith prongs on the back or reverfe part of the hoe, proceeding from the neck of the eye; these prongs would pull up the turnips with a great deal more expedition, it is suppoled, and the increased weight of the hoe would rather be in its favour, by stiffening the force necery to split the roots. The whole is simple and the expence trifling, which render it more valuable.

It is said that by means of this tool the turnips may each readily be fliccd into as many parts, according to their sizes, as that each piece may be small enough for wether lambs, or, which is of more conuenience, for being eaten by the crows, or old toofplews ewes, which may hatch out this way, with nearly equal facility as the young sheep, as they are capable of picking them up, and by a slight toss of the head, to place them so as to be properly conformed. They can thus feed on the root, when they would otherwife find it difficult to supply themselves with a sufficient quantity of food in the usual manner of nibbling the turnip, either while in the ground, or when picked up without being cut. It is the invention of Mr. Malcolm, and is in much use in the county of Surrey, and may be beneficial in many other districts, where the practice of feeding off the crops on the land by flock is a material object to the farmer.

Hand-hoes of from four to twelve inches in width are in use, in this kind of culture, for fetting out the plants and other purpooses, as the nature of the crops may be. See Hoe and Turnip.

**Turnip-Rack**, a contrivance of the rack kind, for sheep eating this and some other sorts of food out of with less waife than in some other ways. It is usually made about eight and a half feet long, and on one side two feet high, and on the other two feet three inches, without the feet, which are about three inches long. In the top, the middle part folds back on the rack, and on the lower part or side of it there is a bend, which serves as a gutter for preventing the rain-water falling from it on the sheep's back. The bottom opens the other way and leaves against the ground, for the convenience of carrying it. It is sometimes placed on low wheels. It is very useful and convenient in many cafes of feeding and fattening sheep.

**Turnip-Sowing Trough**, a contrivance of this kind for the purpose of fowing turnip-feed with regularity in the broad-call manner, where it cannot be done by the hand. It is somewhat in the box form, and fo conformed as to difperfe fuch small feeds with great exactness over the land. See Turnip.

**Turnip-Tray**, a long narrow shallow fort of trough or box contrived and made use of for the purpose of sheep eating turnips out of in confuming them upon the land, in order to prevent waife in fuch modes of feeding.


**Turnip-Roasted Cabbage**, See Cabbage.

**Turnip-Roasted Celery**, a root of that fort of the turnip form. See Apium.

**Turnip-Fallow**, in Agriculture, a term applied to that fort of preparation for the crop which is made by repeatedly working
working over the land in some way or other. The most improved practice is that of not having the autumn broken-up lands tilled again, until the surface-working in the early spring has well loosened the mould, to favour the growth of weeds, which is best performed by means of tools that operate the more superficially, as by this tillage keeping the upper parts fine and unburied that have been broken and reduced by the plough, it is more suited to the rising of such plants than that of turning it down in a deep manner, and the work is done with greater expedition, which is a material object at such a season. This is a most excellent method; but much must constantly depend on the nature and state of the land in such sorts of work. See Fallowing and Turnip.

Turnip-Fly, Prevention of, the means of guarding and protecting young feeding turnip-plants against its attacks and ravages. Though many different means of this nature have been proposed, few have been attended with much success in preferring the crops. The substances which appear to be the most promising in this intention, are those of foot and quick-time, and urine, and quick-time, in a state of mixture proper for being thrown over the plants on the land, in a watering manner, by some form of contrivance for the purpose, or for being put in with the feed. It is suppos'd that the volatile alkali which is given off by these mixtures, may be offensive to the insects; whilst at the same time they afford nourishment and readiness growth to the plants. In a trial with lime flaked in urine, in mixture with three parts of foot, applied by means of a small barrel, perforated all round with little gimlet holes, so as to let the quantity of about four bushels to the acre pass out, and fall into the drills with the turnip-seed, the adjoining rows were found to be eaten away, while those to which the composition was applied were scarcely touched at all. The mixture of sulphur with lime has been used, but on a full trial found wholly inefficient. Ammonial fumes are said to be efficacious by some, but further trials are wanted, and they are not very well suited for the farmer's purpose. See Seed, Steeping, and Turnip.

TURNITZ, or Turnonice, in Geography, a town of Moravia, in the circle of Brunn; 30 miles S.S.E. of Brunn.

TURNNO VICECOMITUM, in Law, a writ that lies for those that are called to the sheriff's turn, out of their own hundred.

TURNPIKE, a gate set up across a road, watched by an officer for the purpose, in order to stop travellers, wagons, coaches, &c. to take toll of them, or money towards repairing or keeping the roads in repair. See Road.

There are several statutes, which have established regulations relating to turnpike-roads, the principal of which, besides those recited under Highway, are as follow. No person shall be capable of acting as a trustee in superintending turnpike-roads, who is not possessed of lands, &c. of the clear yearly value of 40l, or personal estate to the value of 800l; to which purpose he makes oath before two trustees, or their apparent of a person possessed of an estate in land of the clear yearly value of 80l. No alehouse-keeper, nor persons retailing liquors of any kind, are capable of acting as trustees, or holding any place under them, or collecting the toll; but they are not precluded from farming the tolls, provided some other person collects them. No gate-keeper, or person renting the tolls, and refunding in the toll-house, shall gain a personal settlement, nor shall the tolls, or toll-house, be assessed to the poor-rate, or any other public or parishal levy. Any gate-keeper, permitting a violation of the orders pertaining to carriages and horses, and not proceeding with

in one week for the recovery of forfeitures, shall forfeit 40l. and both he and the surveyor shall render upon oath, when required by written notice from the trustees, an account of all money received, on pain of 5l; and all officers shall deliver up their books, &c. relating to the execution of their offices, within ten days after written notice, on pain of 20l; and all persons concerned in the execution of acts relating to turnpike-roads, neglecting their duty, shall forfeit 10l. The Trustees, whole meetings are assembled by ten days' notice affixed on the toll-gates, or other conspicuous places, and adjourned for no longer time than three calendar months, or any five of them, may cause weighing-engines to be erected at the toll-gates, order the weighing of carriages and their loads, and take an additional toll for every hundred weight, over and above the following weights: 2½. for every four-wheel carriage, having the fellies of the wheels sixteen inches broad, eight tons in summer, and seven in winter; for every wagon and wain, with axles of different lengths, having the distance of the nearer pair of wheels on the ground not more than four feet two inches, and the distance of the other pair such, that the fore and hind wheels shall roll only a single surface sixteen inches wide, at the leaf, on each side of the carriage, and the fellies nine inches from side to side, fix tons ten hundred in summer, and fix tons in winter: for every four-wheeled carriage, having the fellies of the wheels nine inches broad, fix tons in summer, and five tons ten hundred in winter: for every cart, having fellies of nine inches, three tons in summer, and two tons fifteen hundred in winter: for every wagon, having the fellies of the wheels fix inches broad, four tons five hundred in summer, and three tons fifteen hundred in winter: for every wagon, rolling a surface of eleven inches, five tons ten hundred in summer, and five tons in winter: for every cart of the same dimensions, two tons twelve hundred in summer, and two tons seven hundred in winter: for every wagon, having the bottom of the fellies of the wheels of breadth than fix inches, three tons ten hundred in summer, and three tons in winter: and for every cart of the same dimensions, one ton ten hundred in summer, and one ton seven hundred in winter: fummers, in all these cases, being determined from May 1, to October 31; and winter from November 1, to April 30. (13 Geo. III. c. 84.) The additional toll shall be as follows: 2½. for the first and second hundred of over-weight, the sum of 3½. for each hundred: for every hundred above two, and not exceeding five hundred, 6½.: for every hundred above five, and not exceeding ten hundred, 2½. 6d.: for every hundred above ten, and not exceeding fifteen hundred, 5l.: and for every hundred above fifteen hundred, 20l. The Trustees, however, of the several turnpike-roads within ten miles of London, Westminster, and Southwark, are allowed to lower these additional tolls at pleasure. (14 Geo. III. c. 82.) The toll-taker offending against these regulations, incurs a forfeiture of 5l; but the preceding regulations of weight do not extend to any carriage employed in husbandry, and carrying manure for land, hay, straw, fodder, or corn unthreshed; excepting hay or straw carried for sale; nor shall any toll be taken for horses belonging to officers or soldiers upon their march, or upon duty, or for any horses, cattle, or carriages, employed in carrying their arms or baggage, &c. It is required that a table of the several tolls be put up at every toll-gate. (18 Geo. III. c. 63.) For the encouragement of broad wheels, the Trustees are empowered to reduce the toll of carriages, having wheels six inches broad, so that it may not be greater than that which is taken for four-wheeled carriages drawn by four horses; and for carts, having the fellies of their wheels six inches broad, no more than for carts drawn by.
by three horses; but for every carriage, having the fellies of the wheels of less breadth than six inches at the bottom, and for the horses, &c. one-half more than the toll payable for the same respectively, except carriages carrying corn in the straw, hay, straw, fodder, dung, lime for the improvement of land, or other manure, and implements of husbandry. The fellies of the wheels of carriages entitled to the above exemptions, and the tire upon them, are required to be so flat, as not to deviate more than one inch from a flat surface. And all carriages, moving upon rollers sixteen inches broad on each side, with flat surfaces, shall pay only so much toll as shall not exceed half of the full toll payable for carriages having the fellies of the wheels six inches broad, and not rolling a surface of sixteen inches on each side; and half-toll shall be paid for waggons having the fellies of the wheels nine inches broad, and rolling a surface of sixteen inches on each side. These regulations do not extend to any chaise-marine, coach, landau, berlin, chariot, chaise, chair, calash, or hearse; nor to the carriage of ammunition or artillery for his majesty's service; nor to any carriage drawn by one horse, or two oxen; nor to any carriage having the fellies of the wheels nine inches broad, and laden with one block of stone or marble, one cable-robe, and one piece of metal or timber; and no toll shall be paid at any turnpike-gate for carriages employed in carrying materials for the repair of any turnpike-road, or public highway. No four-wheeled carriage, having the fellies of the wheels of less breadth than six inches, shall pass on any turnpike-road with more than four horses. Two oxen or neat cattle shall be considered as one horse. For other regulations relating to the number of horses, see Highway. Any carriage may be drawn with any number of horses upon a turnpike-road, where a weighing-engine shall be erected, provided the carriage be weighed at such engine; and the trustees may allow for hills, the rise of which shall be more than four inches in a yard, such number of horses as they shall think necessary, not exceeding ten for waggons with nine-inch wheels, nor fix for carts with nine-inch wheels; and not exceeding seven for waggons with five-inch wheels, nor five for carts with five-inch wheels; and not exceeding five for waggons with wheels of less breadth than six inches, nor four for carts of such dimensions. There is also an exception in favour of carriages that are drawn in deep snow or ice. No carriages, with the fellies of the wheels of less breadth than nine inches, shall be allowed to pass upon any turnpike-road, if the same shall be drawn by horses in pairs; except such, having the breadth of the fellies fix inches, authorized by seven or more trustees, and carriages drawn by two horses only. The penalty, on conviction, by confession or oath of one witnies, is a forfeiture not exceeding 3l. nor less than 10s. The penalty on evading the tolls, by unloading goods, is 3s.; by turning out of the road, for the owner, any fum not exceeding 3l. nor less than 20s.: but for the driver, if he be not the owner, any fum not exceeding 50s. nor less than 10s.; by taking out horses, 5l.; or by taking the benefit of any exemptions fraudulently, a sum not exceeding 3l. nor less than 40s. Exemptions in favour of cattle going to or from water, or pails, shall extend only to such as shall be driven from one parth to the next adjoining, or that shall not pass upon the turnpike-road more than the space of two miles. Turnpike roads are kept in repair by the statute-duty, required by the severall acts, or if this be insufficient, by contracting for labour, &c. The surveyor of any turnpike-road, who shall suffer to remain in any part, within ten feet on either side of the middle of it, for four days, any heap of stones, rubbish, &c. obstructing the passage of it, shall forfeit 40s.; and any person encroaching on it by a ditch, fence, &c. shall forfeit 40s.; and the trustees may direct prosecution by indictment for any nuisance, at the expense of the tolls. See Highway and Road.

If any person shall wilfully or maliciously destroy any turnpike-gate, poll, rail, wall, chain, bar, or other fence, set up to prevent passengers from passing without paying toll, or any house erected for the use of such gate, or any weighing-engine, or refuse any person in custody for such offences, he shall be found guilty of felony, and transported for seven years, or committed to prison for any time not exceeding three years. The indictment for such offences may be inquired of, heard, and determined in any adjacent county; and the hundred shall answer damages, as in cases of robbery. If the trustees erect a gate where they have no power, the justices upon complaint may order the sheriff to remove it. As for direction-tolls, &c. see Highway.

The trustees are empowered to let the tolls to farm, in consequence of public notice, to the best bidder; and if the farmer of the tolls shall take a greater or less toll than he ought to do, he shall forfeit 5l. and the contract; and every other gate-keeper, offending in the same way, shall forfeit 40s. The trustees may also let the tolls during such time as they shall think proper, provided that the persons entitled to five-sixths of the money remaining due upon such tolls content. The penalty for obstructing the execution of any turnpike-act is a forfeiture of a sum not exceeding 10l. nor less than 40s. to be paid to the surveyor for the use of the road, or commitment to the common gaol, or house of correction, for any time not exceeding three months, unless the money be sooner paid. Persons aggrieved by proceedings in the execution of turnpike-acts may appeal, with previous notice, to the general quarter-fellions, when the justices shall determine the appeal, and award costs, &c. But all actions are limited to thirty-three calendar months after the fact committed, and to the county where the defendant resides, or the fact was done; and the defendant may plead the general issue, and if he prevails in the action, have treble costs. 13 Geo. III. c. 84. 14 Geo. III. c. 87. 16 Geo. III. c. 39. 17 Geo. III. c. 16. 18 Geo. III. c. 28. c. 63. Burn's Justice, art. Highway.

The first turnpike-road erected by law was A.D. 1663. 16 Car. II. c. 1.

Turnpike is also used, in the Military Art, for a beam fuch full of spikes, to be placed in a gap, a breach, or at the entrance of a camp, to keep off an enemy. See Cheval de frite.

TURNSOLE. See TURNESOIE.

TURNSIT, VERSATOR, in Zoology, a variety of the dag (which see), which belonged, in the arrangement of Dr. Caius, to the clafs of degeneres, curs, or mongrels.

This breed is much on the decline in England; though still used in some other countries.

TURNSTONE, in Ornithology, the English name of a bird, the tringa marinella of Linnaeus, called by authors marinella marina, or sea-dotteder.

It is a little larger than the blackbird; its head moderately thick; and its body of a length that its back and wing. Its length long, thick and whitish at the base, and sharp and black at the point; and its head, neck, shoulders, wings, and the upper part of its breast, are of a brownish colour: its throat and forehead are ash-coloured; the back and rump are white; the middle of its back is marked with a very large triangular black spot; the tail confines of twelve feathers, the lower half white, the upper black, and the tips white; the quill-feathers are dusky, but from the third or fourth the bottoms are white, increasing to about the ninetneth, when the
the feathers are entirely of that colour. Its legs are short, and of a reddish-yellow or orange-colour.

These birds take their name from their method of feasting. In the act of swallowing, they turn up small flumes with their strong bills, to get at the insects that lurk under them. Ray and Pennant.

Mr. Pennant mentions another species, which is the turn stone from Hudson's Bay, and the *tringa interpres* of Linnaeus; often shot in the north of Scotland and its islands, and also in North America. This bird is of the size of a thrush; the forehead, throat, and belly are white; the breast black; the neck surrounded with a black collar, whence another bounds the sides of the neck, and paffes over the forehead; the head and lower part of the neck behind white; the first streaked with dark lines; the back ferruginous, mixed with black; the coverts of the tail white, crossed with a black bar; the tail black, tip with white; and legs rather short, and of a full orange.

TURN-UP COMPASSES. See COMPASSES.

TURNWRIGHT PLOUGH. See PLOUGH.

TURO, in Geography, a town of Naples, in the province of Bari; 22 miles S.S.W. of Converano.

TUROE, a small island of Denmark, in the Little Belt; 12 miles S.W. of Aarhus, in the island of Funen.

TUROK, a mountain of Persia, in Khorassan; 15 miles S. of Mefchid.

TURON, a sea-port town of Cochinchina, in a bay to which it gives name, and which is deeply indented, so as to afford shelter in some or other of its inlets from every blast of wind; the bottom is mud, and the anchorage safe, with a smooth water throughout. N. lat. 16° 5'. E. long. 108° 6'.

As this harbour affords a safe retreat for ships of any burthen, during the most tempestuous feasons of the year, Mr. Barrow undertook to draw a plan of it agreeably to geometrical admeasurement. The particulars of the operation and its result are described in Macartney's Embassy to China, and minutely illustrated by means of a chart. This chart exhibits an irregular mountainous peninsula, inaccessible on every part of the coast, except that adjacent to the harbour, and at two small sandy bays in the entrance. This peninsula was named New Gibraltar, on account of the local natural advantages which it possesseth, and which renders it capable of being made, like our Gibraltar, impregnable. The natives call this peninsula *Tien-tcha*. United to this peninsula is a level isthmus, from three-quarters of a mile to a mile in width, containing several small villages and patches of ground, under cultivation, chiefly of rice, tobacco, pulse, and fugar-canes. The chart presents also to view the principal town in the vicinity of the harbour, at which the market is held: the adjoining land is well cultivated; and the name given to the place by the natives, as well as to the harbour, is Han-fan. Connected with the peninsula by a reef of rocks, unobserved at low water, is the northern point of a small island clothed with trees and thick bruwash; and as the depth of water is three fathoms within a ship's length of the southern extremity of the island, a convenient place might be prepared, at a small expence, for heaving down and repairing ships. The rocks might be the foundation of a pier or caufway, and thus an excellent dock might be constructed between the island and this peninsula. Such a place would be well adapted for a repository of naval flores, magazines, or warehoufes.

The appendages to this harbour are described and represented in the chart; and particularly a valley with a small village, and about forty or fifty acres of land under tillage, mostly bearing rice; a large village on the banks of a considerable river, meandering through an extensive and apparently fertile and plentiful valley, a cove with plenty of water for ships of any burthen, good anchoring ground, well sheltered, especially from the north-east monfoon, and having at its head an extensive plain, with two villages separated by a small running stream, with forty or fifty acres employed in the culture of rice; and a group of curious marble rocks, extending across the isthmus, one end being washed by the sea, and the other end of the river, without exchanging the river. The adjacent country is suppos'd to be in general, healthy, the violent heat of the summer months being tempered by regular breezes from the sea. September, October, and November, are the feaon of rains; which are also frequent in December, January, and February, attended at this time by cold northerly winds. The inundations, which take place, generally, once a fortnight, and last two or three days at a time, have an effect similar to that of the periodical overflows of the Nile, in rendering the country one of the most fruitful of the globe. In many parts, the land produced three crops of grain in the year. Its most valuable produce, besides the precious metals, confitiled in pepper, cinnamon, fugar, filk, and cotton, which the natives give in exchange for a variety of European manufactures. Not far from the harbour of Turon is the town of Fai-foo, a place of some note, and about eight miles E. of the mouth of a considerable river on the coast of Cochinchina, on the banks of which lies Fai-foo; and opposite to the said mouth of the river is Callao, or, as the Europeans call it, Campello, the bearing of its hightest peak from the harbour of Turon being about S.E., and the distance from it thirty miles. Stausont Emb. to China, vol. i. See Callao.

TURONES, or TURONI, in Ancient Geography, a people of Gaul, described by Lucan (i. i. v. 437.) under the epithet of unfable.

"In tabiles Turonea circumsita caldra coerent.

According to Ptolemy, they had a town, which he calls "Cesaradunum," and he names the people "Turupii." Their city was situated in the mid of the Loire, and they inhabited the territory that lay to the N.W. of it, and belonged to the third Lyonne, of which their city became the metropolis. They had the character of not being fond of war: Tacitus calls them "Turonii imbelle," and Sidonius Apollinaris says of them, "bella timentes defended Turones." When the Roman empire was destroyed in Gaul, the Visigoths became masters of this city under the reign of Euric, and it belonged to them under that of his son Alaric in the year 506. But Clovis, having vanquished and killed this prince in 507, took possession of the whole territory from the Loire to the Pyrenées, and also of the city of Turon, the name of which has been since changed to that of Tours; which fo.

TURONILLA, in Ichthyology, a name given by some authors to the common little prickly fish called the stick-back, or barnflickle.

TUROOT, in Geography, a town of Hindoostan, in Lahore; 25 miles S.E. of Jummo.

TUROQUA, in Ancient Geography, a town of Spain, on the route from Bracara to Alturica, between Burbias and Augus Celtinus. Anton. Itin.

TUROWLA, in Geography, a town of Poland; 20 miles S.E. of Ploczkow.

TURPE, a town of Welshphalia, in the bishopric of Padruh; 3 miles S.E. of Salzkotten.

TURPENTINE, TURBENTHIA, a transparent fluid of resinous juice, flowing either naturally, or by incision, from several unctuous and resinous trees: as the turbarthia, larch, pine, fir, &c.

Medical writers differ in the kinds of turpentine ; as
TURPENTINE.

That of Chio, or Cyprus, that of Venice, that of Strafburg, and the common turpentine.

The turpentine of Chio, or Cyprus, which is the finest genuine kind, and that which gives the denomination to all the rest, is generally about the composition of thick honey, very tenacious, clear, and almost transparent, of a white colour, with a call of yellow, and frequently of blue, of a warm, pungent, bitterish tafe, and a fragrant smell, more agreeable than that of any of the other turpentines.

This is the produce of the common terebinth, or pistacia terebinthus of Linnaeus (see Pistacia), an evergreen bacciferous tree or thorn, growing spontaneously in the Eastern countries, and in some of the southern parts of Europe. The turpentine brought to us is extracted in the islands whose name it bears, by wounding the trunk and branches a little after the buds have come forth; the juice is thin and clear as water, and by degrees thickens into the confiidence in which we meet with it. A like juice, exuding from this tree in the East, infiltrated by a flow fire, is used by Kempter to be used as a medicinal by the Turkish women, for preferring the teeth, sweetening the breath, and promoting the appetite.

The turpentine of Venice is usually thinner than any of the other sorts, of a clear whitish or pale yellowish colour, a hot, pungent, bitterish, disagreeable taste, and a strong smell, without the aromatic flavour of the Chian kind. The true Venice turpentine is said to be obtained from the larch-tree, or pinus larix of Linnaeus (see Pinus), growing in great abundance on the Alps and Pyrenees, and not uncommon in the English gardens. For this purpose, incisions are made at about two or three feet from the ground into the trunk of the trees, and into these they fix narrow troughs, about twenty inches long. The end of these troughs is hollowed, like a ladle; and in the middle is a small hole bored, through which the turpentine runs into a receiver placed below it. The people who gather it visit the trees morning and evening, from the end of May to September, to collect the turpentine out of the receivers. When it flows out of the tree, it is clear, like water, and of a yellowish-white, but as it grows older, it thickens, and becomes of a citron colour. No trees under twelve inches in diameter are tapped; but vigorous trees will yield annually seven or eight pounds for forty or fifty successive years, or during the term of their life. Though this kind of turpentine bears the name of Venice, it is not the produce of the Venetian territories; it is brought from some parts of Germany, and one greatly resembling it, as it is said, from New England. It is also procured, in great abundance in the neighbourhood of Lyons, and in the valley of St. Martin, near Lucern, in Switzerland.

The turpentine flowing naturally, and called by the peasants bijon, is a kind of balm, not inferior in virtue to that of Peru. That drawn by incision, after the tree has ceased to yield spontaneously, is also of considerable use in several arts, and it is even of this that varnish is chiefly made. It must be chosen white and transparent; and care should be taken it has not been counterfeited with some other turpentine.

In the shops, turpentine of Venice is often supplied by a composition of rosin, and the distilled oil of common turpentine.

Turpentine of Strafburg is generally of a middle confidence between the two former, more transparent and less tenacious than either, in colour yellowish-brown, in smell more agreeable than any of the other turpentines, except the Chian; in taste the mottler, yet least acrid. This juice is extracted, in different parts of Germany, from the silver and red firs, (see Pinus Picea), by cutting out successively narrow slips of the bark, from the height which a man can reach, to within two feet of the ground. In some places, a resinous juice is collected from certain knots, under the bark; this, called lactyma abiegn, and oleum abietinum, is accounted superior to the turpentine. Neither this turpentine, nor any thing under its name, is at present common in the shops.

Common turpentine is about the confidence of honey, of an opaque, brownish, white colour, the coarser, heaviest, and in smell and taste the most disagreeable, of all the kinds of turpentine. It is obtained from the wild pine, (see Pinus Sylvestris,) which is extremely resinous; infomuch that, if not evaporated of its juice, it often swells and bursts. The tree is at its perfection when between seventy and eighty years old; but is fit to yield turpentine at the age of forty. Thoé trees which are most exposed to the sun, and have the thickest bark, afford it in the greatest abundance. Of the operations for procuring it commence in the month of May; the oil is first stripped off for six inches, so as to expose the inner smooth bark, near the foot of the tree, and a wound made with a sharp tool three inches square, and an inch deep. The resinous juice flows begins to exude in transparent drops, which fall into a hole previously dug at the foot of the tree; fresh incisions are successively made till September, when the cold begins to check the further evaporation. The warmer the weather is, the greater quantity of turpentine is obtained; and a healthy tree may thus yield from six to twelve pounds of turpentine annually, for a century of years. Part of the juice concretes in the wounds, and is called galiop in Provence, and barea in Guienne; but although it contains oil, yet it is not used for the purpose of procuring it. The proper turpentine is purified by being exposed to the sun's rays in barrels perforated in the bottom, through which it filters when liquefied by the heat.

The juice, as it issues from the tree, is sometimes received in trenches made in the earth, and afterwards freed of its greater impurities by colature through wicker baskets. The oil of the tree appears to contain a resinous matter, of a more grateful kind than that of the trunk; distilled while fresh, the are said to yield a fine effental oil, called by the Germain carpathicum oleum, much superior to that of the turpentines.

The oil of turpentine is obtained by distilling the resin with water in a common still, when the oil is found in the receiver swimming on the water, from which it is easily separated: the average proportion is 60 lbs. of oil from 250 lbs. of good turpentine. This process is carried on both abroad and at home; but the oil drawn in this country is always preferred.

The Canada turpentine (see BALSAM) is obtained from a tree which is a native of North America, that flowers in May, and is brought to this country in casks, each of which contains about one hundred weight. It has a strong not disagreeable odour, and a bitterish taste; it is transparent, whitish, and has the confidence of Copaiva balm.

Although Linnaeus, and several other writers on the Materia Medica, refer the common turpentine to the pineus sylvestris, and the terebinthina argentoratensis, or Strafburg turpentine, to the siber fir-tree; yet upon the authority of Murray, who follows Du Hamel and Haller, Woodville has ascribed the terebinthina vulgaris to the pinus picea, which pours out the turpentine so freely, that it is seldom necessary to make incisions through the bark for the purpose.

All these juices diffusse totally in rectified spirit, but give out little to watery menstrua: they become miscible with water.
water into a milky liquor, by the mediation of the yolk or white of an egg, and more effectually by mucilages. Distilled with water, they yield a considerable quantity of a subtilike, penetrating, effiential oil, vulgarly called spirit. Neumann says, that fifteen ounces of Venice turpentine, being distilled with water, yielded four ounces and three drachms of effiential oil; and the same quantity, distilled without water, yielded with the heat of a water-bath, two ounces only. The effiential oil cannot without great difficulty be distilled in spirit of wine; one part of the oil may be distilled in seven parts of rectified spirit of wine; but on standing a while, the greatest part of the oil separates, and falls to the bottom. After distillation of turpentine with water, a yellow or blackish resin remains in the still, which is the common rosin of the shops. See Rosin and Burgundy Pitch.

The effiential oil, re-distilled by itself in a retort, with a very gentle heat, becomes more subtilike, and in this state is called etherial; a thick matter remaining behind, called balsam of turpentine. A like balsam is also obtained by distilling with a stronger fire, the common rosin; from which there results, first, a thin yellow oil, and afterwards the thicker dark-reddish balsam, a blackish resin, called colophony, remaining in the retort.

All the turpentines are hot stimulants and corrupbants and detergents. They are given, where inflammatory symptoms do not forbid the ufe of them, from half a scruple to half a drachm and upwards, for cleansing the urinary passages, and internal ulcerations in general, and in laxities of the female and uterine vessels. They seem to act in a peculiar manner on the urinary organs, impregnating the water with a violet smell, even when applied externally, particularly the Venice fort. This laft is accounted the most powerful as a diuretic and deterrent, and the Chio and Strauburg as corrupbants. They all loofen the belly, but the Venice mol; and on this account they are suppofted by Riverius and others to be lefs hurtful than fuch irritating diuretics, as are not accompanied with that advantage. Dr. Cullen remarks, that terebinthine glifiers, in offinute colinvenes, are much preferable to falfes, as being more certain and durable. When turpentine is carried into the blood-vefSels, it ftimulates the whole ftystem; and hence its ufe in chronic rheumatifms and paralysis.

Turpentine readily paffes off by urine, which it imbues with a peculiar odour; also by perpiration, and probably by exhalation from the lungs: and to these repective effects are to be ascribed the virtues it may pooffes in gravelly complaints, fcoury, and pulmonic disorders. In all these diseases, however, and especially the laft, this medicine, as well as some of the gums and balfams of the terebinthinace kind, by acting as ftimulants, are often productive of mischief, as was first obferved by Boerhaave, and fince by Forthcgill.

Turpentine has been much ufed in geats and fluor albus; its efficacy in the former of thefe disorders is ascribed by Dr. Cullen, to its inducing fome degree of inflammation of the urethra: in proof of which he fays; "I have had fome inftances, both of turpentine and balfam of copaiva producing a manifeft inflammation in the urethra, to the degree of oc-

cationof a suppression of urine; but when these effects went off, the great which had fubfifted for fome time before, was entirely cured." Of thofe turpentines which we have defcribed, the Venice and Canada turpentines are more generally employed for internal purpofes, the Chian not being easily procured; and the common turpentine is offensive to most inftomachs, fo that its principal ufe is in fome external applications, among the farriers, and for the dilution of the oil.

The oil is a molt potent, ftimulating, deterrent diuretic. It is fometimes given, in dores of a few drops, in rheuma-
tilms and fixed pains of the joints; and fome have ventured on much larger quantities. Cheyne recommends (Eff. on the Gout, p. 199, ed. 10.), as a perfect cure for fepticisms, though of many years standing, from one to four drachms of the ethereal oil, to be taken with thrice its quantity of honey, in a morning fafting, with large draughts of fack-

The oil of turpentine, taken in too large a dofe, hath often very bad confefquences; fuch as a drangury, bloody urine, and its total fuppreffion, with a fever, violent third, and vomiting.

In the Medic. Eff. Edinb. vol. ii. art. 5. we have an account of fuch symptoms produced by the taking of two drachms of this oil in warm ale. The patient was cured by a warm bath, and drinking plentifully of Fuller's emuljo Arabica.

The oil has lately been given with beneficial effect in unusually large dores for the expulfion of the tape-worm. It differs in its action from the other remedies which have been employed inftant tape-worms, by killing the worm before itthrows it out, and hence it promises to be more permanently useful. The oil is ufeful when dropped into the ear in deafnefs occafioned by defect of wax. As a diftinent, it is applied to indolent tumours, and is an ufeful primary application to burn.

Turpentines are ufed in dores of grs. x to 3j; either made into pills with powdered liquorice-root, or dif-

subset in water by means of almonds, mucilage, or yolk of egg. The dose of the oil may be m x to 3j, to produce its diuretic effect; but for the expulfion of tapeworms, it is ne-

cessary to give from 3f to 5j, repeated every eight hours till the worm is thrown out. In these large dores, it is more easily taken when exhibited uncombined. The official preparations of turpentine are, the "oleum tere-
bintinum;" the "emphalium Galbani comp.;" the "un-

guentum elemi comp.;" and of the oil, "linimentum tere-
bintinum."

This oil is generally ufed as a drier, to mix with the other oils; for which purpose it has greatly the advantage of drying-oil, with regard to colour, as it is perfectly trans-

parent and white. It is ufed without any other preparation than mixing it, either alone or together, with drying-oil, with the other oils and colours. Turpentine is sometimes ufed with other bodies, to render spirit of wine a fit vehicle for colours.

The balfam and the infilipated refins are ufed chiefly exter-

nally: the balfam is lefs pungent than the oil, and the refins much lefs so than the turpentines in substance. The common yellow refin, in taffe considerably better, is some-

times given as an internal corrupbant, in preference to the turpentines themselves, as being dividted of the ftimulating oil. Turpentine, formerly much ufed as a digestive appli-

cation,
Turpentine may be of use to preserve the bodies of insects. Mr. Boyle took clear Venice turpentine, and evaporating to two-thirds, obtained a reddish transparent gum, clear of bubbles, easily soluble by heat, and as easily rendered brittle by cold. Having first pulverized it, he melted it for use, with a gentle heat, and dipped the body to be preserved several times in it, till it acquired a coat of due thicknesses.

**Turpentine, Balm, Oil, and Spirit of.** See Turpentine, supr.

**Turpentine-Tree.** See Pistacia.

This tree, besides its proper fruit, which succeeds the flowers in the usual way, is remarkable for producing what authors of little curiosity have named another fruit, called its horn. This horn is a membranous production, of the length and thickness of a man's finger; and what surprised those authors who esteemed it a sort of pod, was to find that it produced, not seeds, but living animals, which they called flies.

The true history of this horn is, that it grows from the surface of the leaves, not from the stalks, in the manner of fruit, and is no natural production of the tree, but a mere accidental thing, occasioned by the wound of an insect on the leaf.

A certain species of animals called pucerons, is peculiarly fond of the juices of the turpentine-tree, and always takes its abode upon its leaves; and these horns are produced in the same manner with the galls of other plants. See Puceron.

**TURPETH.** See Turrith.

**TURPIN, F. H., in Biography, an historical and biographical writer, was born at Caen in 1709, where he became a professor, but afterwards removed to Paris, and employed himself as a copious writer. As he avowed free principles of government, he was under a necessity of quitting France for some time; but he died at Paris in a state of indigence, betraying neither impatience nor regret, at the advanced age of 90 years. Nov. Dict. Hist.

**TURPINIA, in Botany, according to De Théis, is a new genus, dedicated by Humboldt and Bonpland, in their 5th fasciculus, to the honour of M. Turpin, an able botanical draughtsman, as well as a dotinglynaturalist, the author of several articles in the *Annales du Musée d'Histoire Naturelle.* Respecting the characters, clas, or order of this genus, we have no information; but the abilities of the person whose name it bears are conspicuous in the *Flora Parisiensis,* published by M. Poirot and himself, in folio, with splendid plates, printed in colours, a work which unfortunately remains imperfect, for want of encouragement.

**TURPINI, in Geography, a mountain of Silezia, in the principality of Tifehen; 4 miles E. of Jablukhan.

**TURPO, a town of Peru, in the diocese of Guamanga; 36 miles W.N.W. of Guanaca Velesa.

**TURQUOIS, See Turcois.

**TURREA, in Botany, received that name from Linnaeus; but whether he designed to commemorate George à Turre, superintendent of the botanic garden at Padua, in the latter part of the 17th century, or Anthony Turra, a botanist of his own time, remains uncertain. The former published at Padua, in 1685, a folio history of plants, without figures, entitled *Drydumam, Amadrydum, Cloridique Triumphus,* which Linnaeus, when he wrote his *Bibliotheca Botanica,* had never been able to meet with, and which, when he afterwards acquired it, certainly could contribute little to his information, being a mere compilation of obsolete opinions. Anthony Turra, who lived at Vicenza, printed in 1765, a 4to. dissertation on the *Farfettia,* a genus now established by Mr. Brown in *All. Hort. Kew.* v. 3. 96. He also published, in 1780, a *Flora Italica Pomediana,* and is the author of an Italian dissertation on the febrifuge virtues of Horle-chesnufi bark. We cannot but regret that so distinct a genus, remarkable for its elegance as well as rarity, should not be more decidedly or satisfactorily appropriated.—Linn. Mant. 2. 150. Sm. Plant. Ic. f. 1. 10. Schreb. Gen. 285. Wild. Sp. Pl. v. 2. 555. Mart. Mill. Dict. v. 4. Cavan. Diff. 7. 360. Juff. 264. Lamarck Illust. t. 351.—Cliffs and order, *Decandria Monogyna.* Nat. Ord. Tribulata, fett. 1. Linn. Mites, Juff.

Gen. Ch. Cal. Perianth inferior, of one leaf, bell-shaped, five-toothed, small, permanent. Cor. Petals five, linear, moderately spreading, very long, slightly dilated upward. Nectary a cylindrical tube, as long as the petals, or longer; its margin in ten acute spreading segments, sometimes divided. Stam. Filaments ten, very short, inserted between the teeth of the nectary; anthers erect, nearly ovate, emarginate. Pifl. German superior, roundish, style thread-shaped, about the length of the nectary; stigma rather obtuse, corrugated. Peric. Capsule roundish, depressed, five-lobed, five-celled, with ten valves, burbling lengthwise. Seeds kidney-shaped, two in each cell.

Eff. Ch. Calyx with five teeth. Petals five. Nectary cylindrical, bearing the anthers between its segments. Capsule superior, five-lobed, five-celled. Seeds in pairs. Linnaeus knew but one species of *Turrea,* sent him by Koenig. The writer of the present article has delineated that, with two new species, in his *Plantarum Icones,* and has now an opportunity of adding a fourth, making, with one described by Cavanilles, and another by Hallenius, six species in all. The whole are of a shrubby habit, with alternate, flaked, entire, simple, mostly undivided, leaves, without *fipalus,* and flaked, lateral flowers, remarkable for their great length.

1. T. virens, Evergreen Turrea. Linn. Mant. 237. Wild. n. 1. Sm. Plant. Ic. f. 1. t. 10. Cavan. Diff. 361 n. 524.—Leaves elliptic-lanceolate, emarginate, very smooth. Calyx and fruit silky.—Gathered by Koenig among the lava of extinct volcanoes in the East Indies. This is an evergreen *tree,* or *shrub,* with scattered, divaricated, round, brown, leafy branches, slightly silky in their youngest state only. Leaves about three inches long, on short thick stalks, smooth and shining on both sides, terminating in a short, broad, notched point; furnished with a strong midrib, and innumerable finely reticulated veins; their under side much the paler. Flowers in little, short, axillary *tufis,* on angular partial *flalks,* and accompanied by a few small leaves, as well as many linear silky *bratellas.* Calyx very small, silky, with five angles, and five small teeth. Petals and nectary smooth, slender and delicate, above an inch long; we should suppute them to be white, or pale flesh-coloured; Linnaeus thought the former, at least, were yellow. *Capsulat* a quarter of an inch in diameter, clothed with silky prominent hairs.

2. T. pubescens. Downy-leaved Turrea. "Hellenius in Stockh. Trans. for 1788. p. 256. t. 1e. f. 3." Wild. n. 2.—Leaves ovate, undivided or emarginate; down beneath. Flowers aggregate. Calyx villous.—Native of the island of Huanan. The fruit of this species has not been observed. We have never seen a speciment, nor are we peculiar of that particular volume of the Stockholm Transactions, in which alone it is described and figured. Having formerly however examined that work, in order to contrive this with the other species, we have no doubt of its being well defined.

TURRELL, in Geography, a market-town in the district of the same name, and shire of Aberdeen, Scotland; is situated on the banks of the Deveron, 34 miles N. by W. distant from Aberdeen, and 155 N. by E. from Edinburgh. It is a free burgh of barony, by a charter of James IV. granted in 1514, whereby it was entitled to hold a weekly market and two annual fairs; the market is well supplied; and the number of fairs has been increased to seven. The principal manufactures are those of linen-yarn, thread, and brown linen; and here is a considerable bleach-field. The church was rebuilt in 1794. Here was formerly an hospital belonging to the knights Templars; and also one for the poor of Old Aberdeen, founded in 1272 by Cumyn, earl of Buchan, and richly endowed in the succeeding century by king Robert Bruce. The parish of Turrell extends round the town about 34 miles in every direction, except to the N.W. where it is bounded by the Deveron. Agricultural improvements have been lately introduced; and here are several considerable plantations. In the population return of the year 1811, the inhabitants of the parish are stated to be 2227; the number of houses 502.


TURRETS, Moveable, in the Roman Art of War, were of two sorts, the lef and the greater; the lefs fort were about 40 cubits high, with square turrets, 17 cubits broad; they had five or six s, and sometimes ten or more divisions, each of which was open on all sides. The greater turrets were 120 cubits high, and 23 cubits square, containing sometimes fifteen, sometimes twenty divisions. They were of great use in making approaches to the walls, the divisions being able to carry soldiers, with engines, ladders, calling-bridges, and other necessaries. The wheels on which they moved were contrived to be within the planks, to defend them from the enemy, and the men who were to drive them forwards laid behind, where they were most secure; the soldiers within were protected by raw hide thrown over the turrets, and guarding those parts that were most exposed. See Tower.

TURRETED ISLANDS, in Geography, a small island in the Merigui Archipelago. N. lat. 10° 24'.

TURRÉTINI, BENEDICT, in Biography, an eminent Protestant divine, was the descendant of an ancient family of Lucca, and born at Zurich in 1588, being the son of a refugee from his country on account of his attachment to the principles of the Reformation; and in 1612 became a pastor and professor of theology at Geneva. He was employed in several successful missions, by the conduct of which he gained distinguished reputation; and died in 1631, with the character of an eminent theologian, and a man of prudence and moderation. His works were, "A Defence of the Syllogism in the German Version of the Bible," written in French, and comprised 400 pages, published in 1612; with a sequel in 1626; a variety of theological disputations in Latin, on the Calvinistic system of divinity; and sermons in Italian and French. Moreri.
His son, Francis Turrutini, was born at Geneva in 1623, and received his education under several eminent German professors, alio at Leyden, and afterwards at Paris, where he attended the lectures of Galiani. Returning to Geneva, he was admitted to the exercise of his ministry. Having for some time officiated as pastor of the Calvinist church at Lyons, he became, on his return to Geneva in 1653, professor of theology, in which station he continued through life. He was employed in various departments of public business, and died in 1687. Among other theological writings, didactic and controversial, he published "Institutionum Theologiae Elenchicae Partes tres," 1679—1685, exhibiting a fair and candid view of the points that were controverted between the different communions. Morei.

A son of the preceding, John Alphonso Turrutini, and the most celebrated of the name, was born at Geneva in 1671, and having, in consequence of distinguished talents and application, the tuition of able masters, access to a well-stored library, and an ample patrimony, laid the foundation of learning at home, he commenced, in his 20th year, his travels, and at Leyden studied ecclesiastical history under Spanheim. During his residence here he published, in 1692, his "Pyrrhonismus Pontificius, five Theses Theologico-Historiae de Variationibus Pontificiorum, circa Ecclesiae Infallibilitatem," designed to counteract the influence of Buffet's book "Les Variations des Eglises Protetantes," by shewing that the Roman Catholic church had been equally fluctuating in its opinions. At this time he visited England, and being introduced to Burnet, Tillotson, and Wake, he laboured to correct the false notions that were entertained by some English divines concerning the Genevan church. Upon his visit to Paris, he is said to have afforded the doctors of the Sorbonne, in a public disputation, by the purity of his Latin, the depth of his reasoning, and his polite manner of arguing. When he returned to Geneva, he commenced the exercise of his ministry in 1694, and was much admired as a preacher. The magistrates established for him, in 1699, a professorship of ecclesiastical history, the duties of which he discharged without any salary. These lectures were introduced with an oration, "De Sacramentis Ante Christum et Præchristianis," and the substance of these lectures comprised a body of ecclesiastical history, divided into more than 300 dissertations. In 1701 he was chosen rector of the academy of Geneva; and in this station, which he occupied for ten years, he delivered ten annual discourses, displaying eloquence united with erudition and excellent moral sentiments. Upon being appointed to the office of professor of theology in 1705, he delivered an inaugural speech, "De Theologo Veritatis et Pacis Studio," in his course of divinity lectures, he discussed the most important topics of divinity, without the formality of fylem; such as natural religion, the excellence and evidences of the Christian revelation, the perfections of the Deity, the interpretation of Scripture, and similar subjects. It was very much the object of his will to unite all Protentists; and with this view he took part with the German ministers who, in 1706, obtained a dispensation from the necessity of signing the formulary, intitled "Confessum," introduced during the violent disputes that had occurred concerning Grace and Predestination. Some other public offices were devolved upon him, which engaged his attention, and occupied much of his time and labour. His affable exertions, together with the uneasiness that was occasioned by the perturbed state of Geneva, are thought to have shortened his life, which terminated in May 1737, at the age of nearly 66 years. His works in 3 vols. 4to. were published in 1737; and after his death appeared his Com-


All botanists, who have examined into the subject, have found great difficulty in distinguishing this genus from Arabis (see that article); the character of the four prominent scales, or nectariferous glands, in the latter, being very uncertain. The best attempt at discriminating these genera that has ever perhaps been made, is Mr. Brown's, in the Hortus Kewensis, which is founded on the seeds of Arabis being ranged in a single row in each cell, while those of Turrutini compose a double one; for this is, in fact, the only real difference in our learned friend's characters. By his rule, Turrutini bifida and alpina are removed to Arabis; while Brafjica arvenis and Sifymbrium Loewfi, with probably some others, become species of Turrutini. In the latter case, great violence is offered to natural affinity, but perhaps the character itself is not clear in S. Loewfi, and its merit is therefore not invalidated by this species, whose close relationship to S. irdo we have noticed in the proper place. (See SYMIRNIA.) We are almost perverted of the merit of the above definition, in sending away to Arabis all the species of Turrutini which have a single row of seeds, and some of which have always been ambiguous. They meet in their genus with their natural allies. Nevertheless, as we have not yet treated of these species, we shall retain them here, for the present at least, indicating under each Mr. Brown's alterations, for the guidance of those who may wish to judge of his sentiments, and hereafter to conform to them. On subjects connected herewith, the reader will find some remarks under TETRADYNAIMIA.

1. T. glabra. Common Smooth Tower-multer. Linn. Sp. Pl. 930. Willd. n. 1. Ait. n. 2. Fl. Brit. n. 1. Eng. Bot. t. 777. Curt. Lond. fæc. 4. t. 47. Fl. Dan. t. 809. (Turrutini; Ger. Em. 272. Turrutina vulgaris; Clus. Fl. H. v. 2. 126.) — Radical leaves toothed, hairy; the root entire, clasping the stem, very small. Native of dry open gravelly places, in most parts of Europe, from Sweden to Greece, flowering early in summer. In England it is not one of the most common plants, being confined to a gravelly, chalky, or limestone soil. The root is annual, or biennial, tap-shaped. Stem simple, erect, wand-like, two or three feet high, round, smooth; covered with numerous, somewhat crowded or imbricated, erect, very smooth, ovate, acute, glaucous leaves, arrow-shaped at their base; while the
the numerous spreading radial leaves are very rough with partly forked hairs, toothed, or pinnatifid. Flowers cream-coloured, corymbose, very numerous, their common flaky greatly elongated, after flowering, into a dense cluster of long, slender, smooth, erect, flaked pods, each two inches long, and full of numerous small seeds, imbricated in two rows, as we have already mentioned, and not alternately crossing each other, so as to form a simple row. These seeds were formerly an article of the Materia Medica, being esteemed hot and dry, stimulating to the generative faculty, preferring against apoplexy, &c. virtues scarcely intelligible, or confusant.


3. T. trifida. Slender Tower-mustard. Allioni. Auct. 18. Willd. n. 3. — Leaves all smooth and shining: radical ones ovate, somewhat flaked, slightly toothed; the rett lanceolate, strongly toothed, fessile. — In meadows, and rather moist pastures, in several parts of Piedmont. Root white, woody. Stem two feet high, erect, quite simple, round, smooth, firm, clothed from top to bottom with alternate, close-pressed leaves, which are tapering, not arrow-shaped, at the base. Flowers small, white. Pods linear, flat, acute, erect, above an inch long, thin at the margin; the lower ones on longish flanks, and leaf crowded. This species is akin to T. hirsuta. Allioni.

4. T. hirsuta. Hairy Tower-mustard. Linn. Sp. Pl. 930. Willd. n. 4. Fl. Brit. n. 2. Engl. Bot. t. 587. Jacq. k. Rar. t. 126. Fl. Dan. t. 1048. Ehrh. Herb. 159. (T. n. 456; Hall. Hift. v. 1. 168. Arabis hirsuta; Scop. Carn. v. 2. 360. Brown in Ait. n. 91. Enyfimo simila hirsuta alba; Bauh. Prodr. 42. Barbarea muralis; Bauh. Hift. v. 2. 869.) — Leaves all rough, toothed in the middle. Stem hairy; the hairs simple and spreading. Branches straight, erect. Pod slightly quadranular. — Native of dry open pastures, and old walls, in most parts of Europe; not very common in England; flowering in May. The root is strong, woody, and, we believe, perennial. Stems generally several, one of which is much stronger than the rest, erect, a foot or eighteen inches high, leafy, branched, round, clothed with thick-facet, prominent, simple hairs, the flowering part only being smooth. Leaves toothed, chiefly about the middle, bluntish, all more or less hairy; the radical ones obovate, flaberd at the base, but not flaked; thoe on the stem fessile, or partly embracing it, rarely dotted at each side into a small auricle. Flowers numerous, small, white, not coloured. Pods forming a very long, close, erect cleft, all narrow, compressed, but the valves are more or less strongly keeled, so as to render the pod quadrangular; its surface is smooth and shining, beaded, in a manner, with the projecting seeds, which though inferted, of course, alternately, in two rows, range in one fimple series. When ripe the pods droop a little. Linnaeus originally confounded with this his T. alpina, whose leaves are all smooth on both surfaces; and also the following.

5. T. pascu. Early Tower-mustard. (T. n. 2; Ge-
The term *Turlut* (see Fl. Suec. 236.), but afterwards corrected that error. The *ros* is apparently bimodal. *Stern one*, or more, from two to twelve inches high, simple, erect, leafy, round, molyly smooth. *Leaves* all smooth on both sides, fringed with simple or forked, scattered, spreading hairs, a few of which are often clustered into a little tuft at the tips; the radical ones are greatly tinged with red. The more evidently the leaves are toothed, the less they seem to be fringed, as observed in Engl. Bot. Flowers white, larger than in *T. bifida*, forming a simple corymb, soon becoming a long cluster of narrow smooth *petals*, whose valves are very perceptibly keeled. Reyer's original specimen from Favrod proves his plant, and confluently that of Schleicher and Wildenow, to be the *Linnacean T. alpina*.

The *T. carules* of Allioni, Fl. Pedem. v. 1. 270. t. 40. f. 2, being considered as an *Arabis* by Wulfen, who is followed by Wildenow, *Sp. Pl. v. 3. 537*, as well as by Mr. Brown in Alt. Hort. Kew. v. 4, 1844, we shall leave it there. However naturally allied this plant may seem to be to our last-described *Tursis*, it is at least as much akin to *A. alpina*, bellidifolium, and others of that genus.

**TURRORAH**, in *Geography*, a town of Hindoostan, in Gooodwana; 20 miles S.W. of Coomath.

**TURROW**, a town of Hindoostan, in Bahar; 26 miles S.W. of Arrah.

**TURRUNG**, a river of Aizia, which empties itself into a lake, 18 miles S. of Candahar.

**TURSHISH**, sometimes written *Terchis* and *Terzib*, a town and district of Persia, in the province of Kho-rran, 63 furfungs W.N.W. of Herat, lately taken possession of by the troops of his Peruvian majesty. The old city, called Saltanabad, is small; but to this a new one has been added, where the governor and his principal officers reside. They both together contain about 20,000 people, amongst which are 100 Hindoo families. The trade of this place arises principally from the importation of indigo, and other drugs, from the westward; wool and cloth, and rice, from Herat; and the chief export is iron, wrought in thick plates. The trifling quantity of European goods required is brought from Mazanderan. Between this city and Herat the country is in general mountainous, wild, and uncultivated. Kinnir's Mem. of the Persian Empire.

**TURSI**, a town of Naples, in the Basilicata, the fee of a bishop, suffragan of Matera; 24 miles S. of Matera. N. lat. 40° 17'. E. long. 16° 30'.

**TURSIO**, in *Ichthyology*, a name by which Bellouius, Scaliger, and several others, have called the *phocaen*, or porpoise, difinificantly from the dolphin, with which it is confounded by the vulgar. See PORPESSE.

**TURSOSKA**, in *Geography*, a town of Hungary; 16 miles N. of Bolesko.

**TURTALA**, a town of Sweden, in Weft Bothnia; 45 miles N. of Tornea.

**TURTEREBES**, a town of Hungary; 14 miles N.N.E. of Zatmar.

**TURTLE**, in *Ornithology*. See COLUMBA.

**Turtle**, in *Ichthyology*, the name by which we commonly call the great sea-tortoise. See TORTOISE.

**Turtle-Shell, See TORTOISE and TORTOISE-Shell.**

**Turtle Bay**, in *Geography*, a bay on the west coast of Africa. S. lat. 14° 56'.—Allo, a bay on the south coast of New Ireland, so called by captain Carter. Dampier before called it "St. George's Bay"; and from Bougainville it obtained the name of "Prafin Bay."

**Turtle Creek**, a branch of the Monongahela river. At the head of this creek general Braddock was killed in 1755—Allo, a township of Ohio, in the county of Warren, containing 3442 inhabitants.

**Turtle Inlet**, a channel between two small islands, on the coast of New Jersey. N. lat. 35° 2'. W. long. 74° 47'.

**Turtle Island**, a small island in the East Indian sea. S. lat. 6° 35'. E. long. 132° 51'.—Allo, a small island in the South Pacific ocean, surrounded by a reef of coral rocks. S. lat. 19° 50'. W. long. 177° 57'.

**Turtle Lake**, a small lake of Canada. N. lat. 48° 54'. W. long. 71° 31'.

**Turtle Point**, a cape on the south coast of Java. S. lat. 7° 42'. E. long. 109° 58'.—Allo, a cape on the coast of West Florida, in the gulf of Mexico. N. lat. 29° 54'. W. long. 89° 4'.

**Turtle River**, a river of the state of Georgia, which runs into the sea. N. lat. 31° 12'. W. long. 81° 40'.

**TURTON**, a township of England, in Lancashire, with 1782 inhabitants; more than half employed in trade and manufactures; 6 miles S. of Blackburn.

**TURTOCAIA**, a town of European Turkey, in Bulgaria, on the Danube. In 1773, it was taken and burned by the Russians; 34 miles S.W. of Drifta.

**TURTUR**, in *Ornithology*. See COLUMBA.

**Turtur**, in *Ichthyology*, a name given by Paulus Jovius, and some other writers, to the fish called the *pallinaca marina*.

**Turtur, the Turtle-shell, in Natural History,* the name given by the collectors of shells to a very beautiful species of murex, common in the cabinets, but not found anywhere on the shores. This is owing to its having greatly altered its appearance in polishing; for it is not other than the white and brown-mouthed murex, which is common in its rough state, with its outer coat taken off.

**TURUTRA**, in *Geography*, a town of Naples, in Basilicata; 40 miles S. of Potenza.

**TURUTRANO**, a town of Naples, in the province of Otranto; 5 miles S. of Brindisi.

**TURUCHAN**, a river of Ruffia, which rises from a lake, N. lat. 67° 42'. E. long. 84° 14', and runs into the Enfei, a little south of Turuchank.

**TURUCHEA**, a town of Ruffia, in the government of Tobolsk, on the Enfei, formerly called "Mangafea." According to an old tradition delivered down from father to son, a colony from Archangel built the old oelrog of Mangafea, before any other Russian town existed in Siberia. It derives its name from a Samoidean tribe, who inhabited this country, calling themselves Mangale; who, by promising to pay tribute to the Russians, occasioned the building of the town. Old Mangafea, which stood on the river Taz, gradually fell to decay; in 1600, the present town was built, and the inhabitants of the old oelrog were removed hither. This new oelrog was also called "Mangafea," but as it lies at the mouth of the river Turukan, it had also the name of Turukanik, which it retains to this day. This oelrog proved the means of several nations becoming tributary to the Ruffians, it was probably on that account afterwards endowed with the privileges of a town. The houses in this town are not contiguous, and at most do not exceed one hundred. The greatest part of it is included within a small wooden fortification, with four pieces of cannon; and in this stands the house of the governor or prefect, and the principal church; and without it are two other churches. Most of the inhabitants have always been Cuffacks; who were placed here, in order to furbud, or at least to check, the Pagans nations, of this country, particularly the Tungufians and Samoidees; 724 miles N.E. of Tobolsk. N. lat. 65° 40'. E. long. 88° 44'.

**TURUNDA**, a tent, so called in *Surgery*, is usually composed of a bit of lint rolled up, or else of a piece of common sponge, or prepared sponge. Its general use is to keep

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an opening from healing up too soon, in cafes of eblectes, disfigured bone, &c. Sometimes, also, it is used for dilating the aperture, by which means extraneous substances can be removed, without employing the knife. Tents have even been used for dilating the meatus urinarius, and thus enabling the surgeon to extract stones of considerable size from the bladders of female subjects.

TURUNGA, in Geography, a town of Hindooftan, in the circar of Ruttunpour; 24 miles N. of Raypore.

TURZA, or TURCETA, in Ancient Geography, Eylasht, a town of Africa, 6 leagues S.W. of Tunis, now a heap of ruins.

TURZEC, in Geography, a town of Lithuania, in the palatinate of Novgorod; 24 miles E. of Novgorod.

TURZO, TURZKA, in Ancient Geography, a town of Africa, mentioned by Ptolemy, situated eight leagues W. of Vicus Augufli.

TURZONZA, in Geography, a town of Mexico, in the province of Mechoacan, on the side of a lake; 25 miles W. of Mechoacan.

TUS. See Meschla.

TUSA, a fortrefs on the north coast of Sicily; 8 miles S.E. of Cefalu.

TUSANTLU, a town of Mexico, in the province of Mechoacan.

TUSBY, a town of Sweden, in Nyland; 15 miles N. of Helsingfors.

TUSCA, the Zaine, in Ancient Geography, a river of Africa, which seperated Africa Propria from Numidia.

TUSCAN, in Architecture, the first, simplest, and most massive of the five orders.

The Tuscan order takes its name from the ancient people of Lydia, who, coming out of Asia to people Tuscany, first executed it in some temples, which they built in their new plantations.

Vitruvius calls the Tuscan the ruffic order; with whom agrees M. de Cambrai, who, in his Parallel, says, it ought never to be used but in country-houses and palaces. M. le Clerc adds, that in the manner Vitruvius, Palladio, and some others, have ordered it, it does not defer to be used at all. But in Vignola's manner of composition, he allows it a beauty, even in its simplicity; and such as makes it proper not only for private houses, but even for public buildings, as in the piazzas of squares and markets, in the magazines and granaries of cities, and even in the offices and lower apartments of palaces.

The Tuscan has its character and proportions, as well as the other orders; but we have no ancient monuments to give us any regular Tuscan pillar for a standard.

M. Perrault observes, that the characters of the Tuscan are nearly the fame with those of the Doric; and adds, that the Tuscan is, in effect, no other than the Doric, made somewhat stronger, by shortening the shaft of the column; and simpler, by the small number, and largeness of the mouldings.

Vitruvius makes the whole height of the order 14 modules, in which he is followed by Vignola, M. le Clerc, &c. Serlio only makes it 12. Palladio gives us one Tuscan profile, much the fame as that of Vitruvius; and another too rich; on which fide Scamozzi is likewise faulty. Hence it is, that that of Vignola, who has made the order very regular, is most followed by the modern architects. See Column.

Of all the orders, the Tuscan is the most cafily executed, as having neither triglyphs nor dentils, nor modillions to vol. XXXVI.

scrap its intercolumns. On this account, the columns in this order may be ranged in any of the five frances of Vitruvius, viz. the pyramidal, stylofie, cufdfio, dianiole, or arvoffie. For the parts and members of the Tuscan order, their proportions, &c. see Capital, Base, Pedesimal, Freeze, &c.

TUSCANY, in Geography, now called Etruria (which, fee), a grand duchy or kingdom, long celebrated for the arts; the capital of which is Florence, which fee. Pinkerton states its length at about 120 British miles, and its breadth at 90; and its area of 7040 square miles as containing about 1,250,000 persons. The revenue is computed at about half a million Sterling; but the forces do not exceed 6,000 or 8,000. Tuscany is one of the most beautiful and fertile regions of Italy, with a temperate and healthy climate. It abounds in corn and cattle, and produces excellent wines and fruits. The mountains in the Sienese, or southern part of Tuscany, contain valuable ores of antimony, copper which is wrought at Maffa, and other metals, with flate and yellow marble. The serpentine of Impruneta, 7 miles S. from Florence, presents beautiful varieties used in ornamental architecture. Borax has been found in the lakes of Tuscany, near Sienna and Volterra. The Florentine marble is remarkable for picturesque representations of ruins, &c. caused by the infiltration of iron between the laminae. The river Arno receives many small streams; and the Ombrone is a considerable river which pervades the Sienese.

TUSCARAWA, a county of the district of Ohio, containing 3024 inhabitants.—Also, a township of Stark county, in the district of Ohio, containing 145 inhabitants.

TUSCARORA, a village of New York, inhabited by a tribe of Indians of the Tuscarora nation, consisting of about 300 souls, in the county of Niagara, about 23 miles E. of Lewiston. They have a good meeting-house and a Presbyterian clergyman; and also an English school. These Indians are sober and orderly in their general deportment, and many of them are respectable in point of wealth, as well as moral conduct. This tribe came from the S. about the year 1712, and joined the Five Nations or Iroquois. The land on which they now live was given them many years ago by the Senecas.

TUSCARORA, a town of North Carolina; 20 miles S.E. of Halifax.

TUSCARORA Creek, a river of Pennsylvania, which runs into the Juniata, 12 miles S.E. of Lewiston.

TUSCHAMA, a town of Russia, in the government of Irkutsk; 28 miles N.N.W. of Irkutsk.

TUSCHAMSKA, a town of Russia, in the government of Irkutsk; 100 miles N.W. of Irkutsk.

TUSCHGER See, a lake of Carnunia; 11 miles N. of Millhatt.

TUSCHNITZ, a town of Bavaria, in the bishopric of Bamberg; 10 miles N.E. of Lichtenfelds.

TUSCI, in Ancient Geography, a people of Attic Sarmatia, between mount Caucasus and the Caucaunian mountains, according to Ptolemy.

TUSCOMARTEE, in Geography, a town of Curlisfan, pleasantly situated to the north of the Tigris, at the foot of some hills, and well watered by several clear streams that flow from them. It commands a very fine prospect over an extensive vale to the south. In the summer season the sun is so powerful as to destroy all vegetation, except near the rivulets that flow from the mountains, where are found numerous flocks of sheep and herds of cattle. These, however, the shepherds are always obliged to drive to the town.
TUS

in the evening, on account of the wild beasts. In this vale no abode or habitation is visible for near 15 or 20 miles. Jackson's Journey from India, p. 120.

TUSCULAN, in Matters of Literature, is a term which frequently occurs in the phrase Tufcjan Questions. Cicero's "Tufcjan Questions" are disputations on several topics in moral philosophy, which that great author took occasion to denominate, from Tufcjanum, the name of a country seat, or villa, where they were composed, and where he lays the scene of the dispute.

They are comprised in five books; the first on the contemplation of death; the second on enduring pain; the third on alleviating grief; the fourth on the other perturbations of the mind; and the last, toshaw, that virtue is sufficient to a happy life.

TUSCULUM, in Ancient Geography, a town of Latium, at a small distance from Rome, towards the S.E. Its origin was referred to the time of Ulysses, whose son Telemon, by Cteis, is said to have been its founder. Its inhabitants were distinguished for their courage, and placed themselves at the head of the allies in the war of the Latin people. It was afterwards subdued by Rome and became municipal. Its situation on a mountain and between the hills induced the rich inhabitants of Rome to select it as the seat of their country-houses. It had a citadel of no less importance with regard to this city than the Capitol with regard to Rome. It had also an amphitheatre and aqueducts. It was afterwards denominated Frejus or Frejus, which see.

TUSCUM, or Thuscum Mare, the name of a part of the Mediterranean sea, which washed the coasts of Etruria, as far as the coasts of Sicily.

TUSGEL, in Geography, a town of Asiatic Turkey, in Caramania; 42 miles N.W. of Cogni.

TUSHES, in the Mange, are the fore-teeth of a horse, fitted beyond the corner teeth, upon the bars, where they shoot forth on each side of the jaws, two above, and two below, about the age of three, three and a half, and sometimes four; and no milk or foal-teeth ever come up in the place where they grow. See Teeth.

TUSHERI, in Geography, a town of Asia, in Daghestan; 80 miles S. of Tefhis.

TUSIAGATH, in Ancient Geography, a town of Africa, in the interior of Mauritania Cæsariensis, according to Ptolemy.

TUSIS, in Geography, a town of the Heleotian republic, in the Grisons, on the Rhine. In 1799, it was taken by the French; 15 miles S. of Coire. N. lat. 46° 32'. E. long. 9° 30'.

TUSK, in Carpentory, a bevel-shoulder, made to strengthen the iron of the joint, which is let into the gider.

TUSK, in Zoology, is used to denote the long tooth of a fighting animal; and in the fennite with tuftes, as applied to other animals besides horses.

TUSKAR, in Geography, a small island, or rather rock, off the coast of the county of Wexford, Ireland, forming a conspicuous object for mariners. N. lat. 52° 15'. W. long. 6° 10'.

TUSKAU, a town of Bohemia, in the circle of Platen; 6 miles N.W. of Teinitz.

TUSKAWARA, a township of Muskoggin county, in the district of Ohio, containing 1151 inhabitants.

TUSO, in Ancient Geography, a river of India, on this side of the Ganges, into which it runs.

TUSPA, in Geography, a town of Mexico, in the province of Mechoacan; 25 miles N.N.E. of Colima.—Alfo, a town of Mexico, in the province of Tlaxcala, at the mouth of a river so called; 140 miles N.N.E. of Puebla de los Angeles.—Alfo, a river of Mexico, which runs into the gulf of Mexico, N. lat. 21° 28'. W. long. 98'.

TUSSEY, in Geography, the name of mountains of Pennsylvania; 10 miles N. of Huntingdon.


Gen. Ch. Common Calyx cylindrical, tumid at the bottom, of from fifteen to twenty linear-lanceolate, equal, somewhat membranous scales, the length of the disk. Cor. compound, various. Florets in some all perfect, tubular, funnel-shaped, with an acute, four or five-cleft, reflexed limb, longer than the calyx; in others such florets are found in the disk only. Female florets when present either ligulate, very narrow, undivided, longer than the calyx; or tubular, and rather longer than the perfect florets. Stam. in the perfect florets, Filaments five, capillary, very short; anthers more or less united into a cylindrical tube. Pet. Germen in the perfect florets, short; style thread-shaped, longer than the filaments; stigma thickish, emarginate: in the female ones, Germen short; style thread-shaped, the length of the former; stigma deeply divided, acute. Perianth, except the scarcely altered calyx. Seeds solitary, oblong, compressed, generally abortive in the florets of the disk, or centre thereof. Down capillary, sometimes flaked. Recept. naked, dotted. Eft. Ch. Receptacle naked. Seed-down simple. Calyx simple.
TUSILAGO

simple, of many equal, somewhat membranous leaves; tu-
mid at the base.

Obs. Linnaeus remarks, that Petasites of Tournefort
has no ligulate florets in the radius, though some female
naked ones occur: Tufiflago of the fame author has always
two female florets in the radius, furnished with a ligulate corolla: 
Anandria of Linneus himself, Am. Acad. v. 1. 243, has
seflie feed-down; and T. frigida varies with or without a
radius. These confidences are indeed variable at all times, but
ef pecially in the genus now under confideration. We
have mentioned in Fl. Brit. that some reputed species appear
near to be but different flxes of one and the fame. Of this
the Britifh T. hybrida and Petasites are one infance. We
shall indicate other similar cafes, in which it feemes Ehrhart
has forestalled us, in his Beiträge, v. 3. His difcoveries are
confirmed by Hoppe; and both these authors are followed
by Willdenow, without any reference to the Flora Britannica,
unto which however the publication of Hoppe is three years
posterter. We are well affured that this apparent negletct
was not intentional, and the obervations in question, having
been made by each perfon independently, derive from thence
the more authority. The whole genus of Tufiflago is herba-
ceous, without any stem. Leaves falked, fimple, angular,
toothed, more or lefs heart-shaped. Pubfence of the herbage
cottony, dense, generally remarkable for its pure whitefens, and
foft texture. Flowers white, or pale red; sometimes yellow,
etrally solitary, or denfely panicked. Seed-down of a
brilliant livery white.—Willdenow reckons up twenty-one
species, but his firft two, T. Anandria and lyrata, will be
found under our article Perdicum, fp. 3. and 4; his T.
lyrata being Gmelin's t. 67. f. 2, mentioned under our Per-
dicum popiferifenum, n. 4, as a probable variety of Anandria.
Willdenow's 4th species, T. inteflifolos, is Chaptalia tomens-
tofa, Venten. Jard. de Cels 61. Pursh 577. If not a good
genus, it must be referred to Perdicum; being certainly no
Tufiflago. Very possibly the third species of Willdenow may
also belong to Perdicum; but this being a very uncertain
plant, known from Plumer's figure only, we muft leave it as
we find it, among other fpaces placed here by authors,
but which to us are by no means free from doubt as to their
generic characters; nor can that queftion be decided without
an investigation and comparifon of their fresh flowers.
Sp. Pl. 1213. Wildl. n. 3. (A. d. acutus, hieracioides volhos,
folius; Pl. ic. 28. t. 0. 211.)—Stalk fingle-flowered, 
naked. Flower radiated, creft. Leaves fefile, oblong,
waft, toothed, villos.—Gathered by Plumer in the Weft
Indies. The root appears to be fibrous. Leaves numerous,
three or four inches long, with an undulated ftrongly
toothed margin. Flower-flols also numerous, though fewer
than the leaves, smooth. Flowers radiated, somewhat like
our common T. Farfara, but much smaller.
2. T. albicans. Whitish Jamaica Cofts-foot. Swartz
Ind. Occ. 1348. Wildl. n. 5. (Leontodon tomentosum;
Linn. Suppl. 347.)—Stalk fingle-flowered, naked; cottony
at the top. Flower radiated, drooping. Leaves falked,
obovate, with flight reverfed ferratures; cottony benef;
tapering at the bafe.—Native of dry gravelly inland paitures,
in the western part of Jamaica. Swartz. Sent to Lin-
neus in Browne's herbarium. Root fibrous, probably pe-
enent, though marked annual. Leaves two or three inches
long, of a narrow obovate form; green and nearly naked
above; fnow-white beneath; their margin fliitely waft,
hefet with minute diftant teeth, all pointing backwards.
Stalks few, often a foot high, round, reddish, fliitute of
leaves or bracteas, clothed about the top, for near two inches,
with dense cottony down. Flower white, drooping as it
fades; according to Swartz's defcription it anfwers to the
characters of this genus. Seed-down shining, with a reddith,
or pink, hue.
Occ. 1350. Wildl. n. 6.—Stalk fingle-flowered, naked,
downy. Flower radiated, creft. Leaves obovate, with
reverfed teeth; finated at the bafe; downy beneath.—
Found on the lofty calcareous mountains of the fouth part
of Jamaica, near Cold-fpring, flowering in fummer. Smaller
than the lat, to which it feemes nearly allied; but the leaves,
only an inch or two in length, are pinnatifid in a lyrate man-
ner. Stalk ftrongly folitary, from three to fiix inches high,
roundifh, cottony; purplifh in the lower part. Flower
small, white; creft according to Willdenow, and the
fpecifc character of Swartz, though the latter calls it drop-
ing in his defcription. Its ftucture is that of a Tufiflago.
Swartz Obf. 305. (Leontodon n. 1; Browne Jam. 310.
Dens leonis, folio fubius incano, flore purpureo; Sloane
Jam. v. 1. 255. t. 150. f. 2. After primula veris folio,
flore fingulari purpureo; Plum. ic. 29. t. 41. f. 1.)—Stalk
fingle-flowered, naked, cottony. Flower radiated, penden-
ous. Leaves falked, oblong-heartfped, wavy, toothed;
cottony benef; finated at the bafe.—Native of culti-
vated and granfy places in Jamaica. Swartz defcribes it as
an annual. Mr. Atton marks it biennial, flowering in the flove
in June and July. The much larger leaves, near a fapan
long, pinnatifid in a lyrate manner, and the fflats twelve or
fifteen inches high, diftinguifh this species from all the pre-
ceding. The flower is pendulous, with a white difk and
radius, but the fendler points of the calyx-folias being fipped
with purple, have, as it appears to us, been miftaken for
a purpfe radius by Sloane, and even by the more learned pro-
feffor Swartz. When in feed, the ftalk becomes creft. The
down is rather tuawny, or reddith.
Pl. Magell. 28. Wildl. n. 8.—Stalk fingle-flowered, fealy.
Flower radiated, creft. Leaves fpatulate, with three or
more oblong fegments, smooth.—Native of dry hilly fitu-
aftions about the ifrata of Magellan. Root peennier, fome-
what tuberous. Leaves radical, tufted, an inch long, di-
vided into three, four, or five, oblong, creft, finger-like
fegments, spreading, quite smooth and naked. Stalk from
one to three inches high, round, clothed with awk-fpaped
fealy bracteas. Flower white, with all the characters of its
genus. Inner fcales of the calyx largeft, with spreading
horizontal points.
t. 84. (T. alpina fecunda; Clus. Hift. v. 2. 113. Aferanis;
Matth. Valgr. v. 1. 34. A. Matthioli; Ger. Em. 836.)—
Stalk fingle-flowered, with oblong scattered bractceas.
Flower without rays. Leaves kidney-shaped, toothed,
smooth on both fides.—Native of the alps of Auffria,
Bohema, Switzerland, &c. flowering in June and July. The
root is peenniel, tuberous, and creeping, brown, with many
long fibres. Leaves few, radical, falked, from one to two
inches broad, bluntly toothed; quite smooth, and of a fliit-
ing green, reticulated with defpried branching veins above;
paler beneath, but equally smooth, except feeve hairs on the
ribs or veins. Stalk folitary, a foot or more in height, creft,
purplish, hairy, bearing a few diftant, varioufly shaped, con-
cave, upright bracteas. Flower creft, half an inch broad.
Calyx purple, smooth. Florets white, sometimes purplifh,
all regular and fide-eft, with purple anters and fligans.
3 2
1. 247.
TUSILLAGO.

1. 247. Willd. n. 10. Ait. n. 3. (T. alpina; Linn. Sp. Fl. 1214.) T. alpina prima; Chuf. Hift. v. 2. 112. T. alpina; Ger. Em. 812.—Stalk single-flowered, nearly naked. Flower without rays. Leaves kidney-shaped, toothed, downy and white beneath.—Native of the Alps of Austria, Carniola, &c. growing along with the leaf, and flowering at the same season. This is rather smaller than the preceding, usually with fewer bracteas. The under side of the leaves is clothed with dense white cottony down, which affords the most distinguishing mark of this plant. It is preferred by pot authors to prove it specifically distinct. Linnaeus thought it but a variety.

8. T. falcifera. Lobed Alpine Colt’s-foot. Scop. Carn. v. 2. 157. Jacq. Auct. v. 5. Append. 33. t. 12. Willd. n. 11.—Stalk mostly single-flowered, with dilated scattered bracteas. Flower without rays. Leaves smooth, kidney-shaped, many-lobed and toothed.—Native of mountainous, chiefly beech, woods of Styria, Carnithia, &c. flowering in May. Allied to T. alpina, to which it has been confounded by Scopolii, Haller, and even Jacquin; but the leaf has the merit of sub-frequently distinguishing this very well-marked species. It is larger than alpina, and the flae sometimes bears two or three flowers, scarcely differing from those of alpina or discofus. The bracteas however are broader, often terminating in a leafy appendage, particularly the lower ones. The radical bracteas are very different, being cut into about seven rather shallow lobes, of which the middle ones more especially have about three pointed teeth. The upper surface is green, sometimes roughish to the touch, slightly marked with veins; the under paler, peculiarly smooth and even, a little shining. We have not heard of this plant in any British garden, nor had Linnaeus a specimen.

9. T. Forfora. Common Colt’s-foot. Linn. Sp. Fl. 1214. Willd. n. 12. Fl. Brit. n. 1. Engl. Bot. t. 429. Curt. Lond. fasc. 2. t. 60. Woody. Med. Bot. t. 13. Bulliard Herb. de la Fr. t. 329. Fl. Dan. t. 195. (Tussilago; Ger. Em. 811. Matth. Valgr. v. 2. 198. Camer. Epit. 590, 591.)—Stalk single-flowered, fealy. Flower radiated. Leaves heart-shaped, angular, toothed; downy beneath.—Native of moist chalky sandy situations, throughout Europe; flowering in March or April, before the leaves appear. Dr. Sibthorp met with it about hills and inundated places in Greece, nor can there be any doubt of our Colt’s-foot being the βαντα of Dioscorides, of which Farfora, fee that article, is an ancient synonym. The roots of this species are perennial, creeping to a great extent. Stalks five or six inch high, erect, lumpy, downy, clothed with numerous, alternate, ovate, erect, purplish, nearly smooth scales, three-quarters of an inch long. Flower drooping before it expands, then erect, yellow, an inch broad; the radius of very numerous, long, narrow, spreading, ligulate flae, which Dr. Stokes has observed to be the only ones that ever perfect their seed. Indeed the plant increases so much by root, that fearlessly any seeds are ever ripened. The leaes come forth on erect footstalks, after the flowers and their stalks have withered, and are from three to six inches wide, harshly toothed; very smooth, and rather glaucous, above; covered beneath with dense, white, cottony down. They are mucilaginous and aromatic, slightly bitter, and are recommended either in infusion, or smoked like tobacco, as a cure for coughs. The latter mode of application is advised by Dioscorides in difficulty of breathing, dry cough, &c. and he recommends these leaves bruised, with honey, as an external remedy for coughs, and other inflammations of the skin. The cottony web of this herb serves extremely well for tinder, and to staunch the blood of flight wounds.—Wildenow says there is a variety with perfectly smooth leaves.

10. T. japonica. Japan Colt’s-foot. Linn. Mant. 113. Willd. n. 13. Thum. Jap. 313. Banks 1c. Kämpf. t. 27, 28. (Arnica tussilaginis; Bum. Ind. 122. Doro-nicum tussilaginis folio, &c.; Pluk. Amahi 71. t. 390. f. 6. Twa; Kämpf. Am. Exot. 827.)—Stalk with several radiated flowers, corymbose, bracteate. Leaves roundish-heart-shaped, toothed; slightly downy beneath.—Native of Japan. Flowers in October; Raint teenager, tuberous. Stalks twelve or fifteen inches high, angular, furrowed, reddish, downy in the upper part, bearing a few scattered fealy bracteas, and terminating in from five to eight large yellow radiated flowers, on downy alternate partial stalks. Rays wedge-shaped. The seed-down is fealy, like the leaf. Leaves coming after the flowers, on long upright footstalks; their breadth three or four inches; length much less; their under side paler, but scarcely downy. The root, according to Thunberg, is bitter, and esteemed a counter-poison by the Japanese. Kempfer says the flae are used as a pot-herb.

11. T. frigida. Lapland Colt’s-foot. Linn. Sp. Fl. 1214. Fl. Lapp. ed. 2. 246. Willd. n. 14. Ait. n. 5. Purth n. 1. Fl. Dan. t. 61. (T. n. 128; Gmel. Sib. v. 2. 150. t. 70.)—Stalk with many radiated flowers, corymbose, bracteate. Leaves triangular-heart-shaped, with deep triangular teeth; downy beneath.—Found by Linnaeus plentifully in woods and pastures among the Lapland alps, flowering towards the end of May, and shedding its seeds about a month afterwards. It occurs likewise in Norway and Siberia, as well as, according to Mr. Purth, in Canada, and on the highest peaks of the Vermont and New Hampshire mountains, at the same season. The root is somewhat tuberous and creeping, though less flaky than the leaf, with copious long fibres. Leaves and flowers appearing nearly together, on footstalks about equal in height, from ten to fifteen inches; the former remarkable for their very large angular teeth. The flower-footstalk bears several alternate, large, thick, smooth bracteatas, sometimes coming in a small leaf. Flowers white; the flae of the disk tinged with pale purple, especially their large, club-shaped, hairy, prominent, but we believe unfeathered, sigmas. Seed-down fealy, above an inch long, fibrous.

12. T. fragrants. Sweet-scented Colt’s-foot. Villars Actes de la Soc. d’Hifi. Nat. de Paris, v. 1. t. 12. t. 12. Willd. n. 15. Ait. n. 6. Curt. Mag. t. 1388.—Stalk panicked, level-topped, somewhat leafy. Flowers radiated. Leaves roundish-heart-shaped, oblong, equally and finely toothed; rather hairy beneath.—Native of the neighbourhood of Naples, and of Sicily near Palermo; introduced into England by Meffrs. Lee and Kennedy in 1806. It flowers in the winter, or early spring. The leaves, which are green on both sides, rounded, obtuse, not at all lobed or cut, appear with the flowers. The latter are large, fragrant like Heliotropium peruvianum, with broad light-purple rays, and a white disk, the ausmas of whose flores is dark-purple. The panicle is compound, rather dense; its stalk taller than the foliage, clothed with very large inflated bracteas having leafy terminations.

13. T. levigata. Smooth Straw-coloured Colt’s-foot. Willd. n. 16. (T. forado imbriciato, floribus spicatis radiatis, foliis utrinque glaberrimis; Gmel. Sib. v. 2. 148. n. 126.)—Stalk panicked, level-topped. Flowers radiated. Leaves heart-shaped, acute, slightly angular, toothed, smooth on both sides.—Abundant about the mouths and shores of rivers in Siberia, flowering in spring, at which time all but the flowers is generally under water. Gmelin. Root flaky, purplish,
purpurine, creeping to the extent of many feet, with many long, thick, fimple fibres. *Leaves* about two inches broad at the flowering period, but when full grown, eighteen inches in diameter; bright green and smooth, or birst, purpurine at the edges, *f.lur*; copiously veined beneath; their margin irregually and sharply toothed, sometimes angular. *Flowers* smooth, a foot or more in length. *Flower stalk* taller than the leaves, thick, succulent, reddish, sriated, slightly cottony, bearing many large, inflated, feathering *bracteae*, and terminating in a more or less compound, level-topped, or corymbose, *panicle*, whose downy flakks are furnished with many smooth, linear-lanceolate, flt, much smaller *bracteas*. *Flowers* from eight to twenty, scarcely an inch in breadth, fbraw-coloured, with short frhys.

Willdenow's opinion of this being a very distinct species, is confirmed by Gmelin's *own spicimens* in the Linnæan herbarium; which also, unless we are greatly mif- taken, shew n. 127. t. 69, D, E, of the same author, to be the very fame plant, totally different from the common T. *Petajites*, with which he compares it; in many other points besides the colour of the *flowers*. 14. T. *alba*. White Colt's-foot, or Double-toothed Butter-burr. Linn. Sp. Pl. 1214. Willd. n. 17. Ait. n. 7. Fl. Dan. t. 524. (Petajites flore albo; Camer. Epit. 593. P. n. 1391; Hall. Hift. v. 1. 61.) —Panicle denfe, level-topped. *Flowers* without rays. Leaves roundish-heartshaped, doubly and sharply toothed; white and fhaggy beneath. —In mountainous woods, and about the banks of rivers, in the alpine parts of Europe, not rare in Switzerland, but unknown as a native of Britain. It appears to have been cultivated at Edinburgh in the time of Sutherland, 1683, and we obtained a specimen from the botanic garden there 100 years after, under the erroneous name of T. *hybrida*. This is a large species, distinguished from all the rest, of those which bear many flowers on a flak, by its strongly, doubly, and acutely-toothed *bracteae*; quite smooth above; very weiny and cottomy beneath, when young, but afterwards the pubefeence of that fide becomes more grey, fhaggy, and lofe. The tall downy *flower stalk* bears a great number of broad, concave, rather cottony *bracteas*, and terminates in a branched manyflowered corymbose *panicle*. The *flowers* are rather fmall, snow-white, without rays. Dofen felfife. Willdenow and other botanifts have obferved, that fome individual plants have but very few, and others many, female *flowers*, in comparison to thofe, furnished with both *flamen* and *pifils*; but the author juft named has mifled by Villars to cite, as the female plant of this species, Gmelin's t. 69. f. D, E, which has yellow *flowers*; see our n. 13.

15. T. *nivea*. Snowy Colt's-foot, or White-leaved Butter-burr. Villars Actes de la Soc. d'Hift. Nat. de Paris, v. 1. 73. t. 12. f. 2. Willd. n. 18. Ait. n. 8. (T. rigida, p. Villars Dauph. v. 3. 175, T. paradiza, Retz. Obi. f. 2. 24. t. 3. Petajites n. 141; Hall. Hift. v. 1. 62. P. minor, trifluage folio; Moril. feif. 7. t. 10. f. 4.) —Panicle denfe, rather oblong. *Flowers* without rays. Leaves triangular-heartshaped, simply toothed, with spreading angular lobes; densely downy and white beneath. —Native of the mountains of Switzerland, Germany, Dauphinie, &c. *Flowering in April*. Differs from the lat in the snowy whitenefs, and defe pubefeence, of the under fide of the *leaves*, as well as in their triangular form, and their fimple margin of marginal teeth. *Flowers* pale fclaw-coloured. Common *flak* clothed with ftlicht large *bracteas*. Seed-down near an inch long. The female plant, termed *paradiza*, as aiftinct species, by Retzius, has but about three appa rently perfect *flowers* in each *calyx*, and of t'hese the amber
destitute of a corolla, which is Elsholtz's townensis; the other with a more elongated corymb, and numerous female florets, each with an oblique tubular corolla, but whose disk may nevertheless be said to be small and barren; this is the original paradoxa. We presume the idea of the barren disk may be a mistake of Retzius; that part, when imperfect, being, in this tribe of plants, always thickened; but we have had no opportunity of examining living specimens of T. spuria, which is a stranger to the gardens of England.


19. T. palmata. Cut-leaved Colt's-foot. Ait. n. 10, ed. 1. v. 5. 188. t. 11. Willd. n. 21. — Flowers corymblose, level-topped, radiated. Leaves feven-lobed, palmate, cut; downy beneath.—Native of Newfoundland and Labrador. Introduced into England by Dr. Fothergill, in 1777. Perennial, flowering in April. The leaf and inflanceence resemble the lali. The flowers are light flesh-coloured, or purplish, with short obtuse rays. The leaves, which by Wildenow's account vary in the depth of their lobes, afford a clear specific difference from all the other species.

Tussilago, in Gardening, comprehends plants of the low, hardy, herbaceous, creeping-rooted perennial kinds; among which, the species most commonly cultivated in gardens for different purposes are, the common tussilago or colt's-foot (T. farfara); the mountain colt's-foot (T. alpina); the Siberian colt's-foot (T. anandra); the petasites, tussilago major, or common butter-bur (T. petasites); the hybrid German tussilago, greater colt's-foot, or long-flaked butter-bur (T. hybrida); and the white alpine tussilago, or smaller butter-bur (T. alba).

The first fort has a creeping perennial root, short, thickish stalk, with fine roundish hoary leaves; which are produced after the flern and flower; hence it is denominated one of the triste ante patrem, or son before the father, tribe or class of plants, or thoe in which the flowers rise before the leaves.

It is not much cultivated in the garden manner, except in herbaceous collections as a medicinal herb for making decoctions and other mild balsamic drinks, and for the use of its leaves as a principal ingredient in the preparation of the British herb tobacco, and other similar compositions. Sometimes, however, it is employed for variety in patches in the borders and other parts of ornamented grounds.

In the second kind, there is a variety which has round hoary leaves.

The fourth fort is also sometimes cultivated and employed as a medicinal plant in different intentions.

Method of Culture.—They are all capable of being raised and increased by sowir the seeds of them in any proper and suitable soil and situation in the early spring season; but not to too great a depth, when they will freely rise and become good plants. But the bell and most expeditious method is that of parting the roots and planting them, which may be done either in the autumnal or spring season, when the smallest flbr will readily take root and grow, multiplying in a very quick manner.

Most of the forts possess the singular property of producing and sending up their flowers and stalks before the leaves are formed and seen.

The plants mostly affect rather moist soils and situations, but they will grow and succeed almost any where, and may be employed for affording greater variety and ornament, as well as some of them for the purposes and intentions which have been suggested above.

Tussis. See Cough.

Tussilagin, in Geography, a town of Bavaria; 4 miles W.S.W. of New Otting.

Tut, in Armor, &c. an imperial ensign of a golden globe, with a crofs on it.

Tut Bargain, among the Miners, denotes a bargain by the lump; as when they undertake to perform a piece of work at a fixed price, however it may prove.

Tutacorin, or Tuttcorin, in Geography, a town of Hindooftan, in the Carnatic, where the Dutch have a factory; 25 miles E. of Palamotta.

Tutary, a town of Sweden, in the province of Smaland; 24 miles W. of Wexio.

Tutbury, or Stutbury, a market-town in the hundred of Offlow, and county of Stafford, England; is situated on the western bank of the river Dove, at the distance of 4 miles N.W. by N. from Burton-on-Trent, and 134 miles in the same bearing from London. It was erected a free borough at an early period, and the burgesses and other inhabitants were invested with a variety of priviliges and immunities; but never had the right of sending members to parliament, though the town still retains the appellation of a borough. The parish-church is an ancient and spacious edifice, with a square embattled tower, surrounded by four small pavements; its principal entrance is decorated with fine specimins of Saxo sculpture. A free school was founded and endowed by Richard Wakefield in the year 1730; it was rebuilt in 1789. Here is also a meeting-house for Dissenters. According to the population register of the return of the year 1811, the parish of Tutbury contained 242 houses, occupied by 1235 persons. Wool-combing constitutes the principal business of the inhabitants; and a cotton manufactury, recently established, gives employment to a considerable number. Three fairs are held annually, and a market weekly, on Tuesdays. On the north side of the town are the remains of the castle of Tutbury, which was erected soon after the Conquest, by Henry de Ferrars, a noble Norman, to whom the Conqueror gave large eftates in this county. In the family of Ferrars it continued till the reign of Henry III., when, being forfeited by the attainer of Robert de Ferrars, earl of Derby, the king granted it to his second son Edmund, earl of Lancaster. It again reverted to the crown, in consequence of the rebellion of Thomas, earl of Lancaster, who fortified it against Edward II., but was obliged to surrender. Having sustained considerable damage during this contest, and being afterwards suffered to fall into decay, John of Gaunt rebuilt the greater part of it upon the ancient site in 1350. This castle, being the principal seat of the dukes of Lancaster, was long distinguished as the scene of much fertility and splendour. So great was the number of minstrels resorting to it, that it was found necessary to adopt special regulations for the preservation of order. Accordingly, one of their body was invested with the title of king of the minstrels, with officers under him for the due execution of the laws. A charter for that purpose was granted by John of Gaunt in 1381; and a court was established for determining all controversy connected with minstrelsy. At this court, which was annually held with great formality, the king and his officers were appointed for the year ensuing; and the bunneys of the day concluded with a bull-running and baying. This barbarous custom was abolished, by commutation, about the middle of the last century; but the court still continues to be held. Tutbury cattle was twice the residence, or rather prison, of Mary queen
queen of Scots; in 1568, and again in 1589. At the commi-
ncement of the civil war in the reign of Charles I. it was
warranted by lord Loughborough, a zealous supporter of
the royal cause; but was besieged and taken by sir William
Bretton, one of the parliamentary commanders. The
damage sustained by the castle on this occasion was very
great; but it was not doomed to total destruction till
1646, when, by order of the parliament, it was reduced
nearly to its present ruinous condition. What still remains,
sufficently declares its former extent and grandeur; the
ancient gateway is tolerably entire; and towers, staircases,
divisions of rooms, and fire-places, can yet be discovered in
different parts of the walls, which appear to have been of
immense strength and thickness: the whole was surrounded
by a broad and deep ditch, over which, Dr. Plot informs
us, there was in his time an extraordinary timber-bridge,
composed of distinct pieces of wood, none of them above a
yard long, yet unsupported by any arch-work, pillars, or
other prop. Coeval with the castle, and founded by the
fame perfon, was a Benedictine priory, largely endowed by
king William Rufus. The site was granted by Edward VI.
to sir William Cavendish. Scarcely a vestige of the ancient
building is now left, and we know little more of its struc-
ture, than that it was of large extent, and contained a
splendid monument to the memory of the founder. A
portion of the old priory church constitutes a part of the
present parish-church.—Description of the Castle and
Priory of Tutbury, 8vo. 1796. Beauties of England and
Wales, vol. xii. Staffordshire, 1814.

TUTELA, in Ancient Geography, a town of Spain, in
Celtiberia, according to Martial.

TUTELA, in Mythology, a goddes worshipped at Bour-
deaux, of which city she was patroness, and where she
had a magnificent temple. She is suppos'd by learned antiquaries
to have been a divinity peculiar to sailors and merchants,
who trafficked upon the rivers, as it was a common praetice
to put upon their ships the figures of certain gods, who gave
names to them, and were called by the ancients "Tutela
Natis," the tutelar divinity of the ship.

TUTELARY, TUTELARIS, one who has taken some-
things into his patronage and protection.

It is an ancient opinion, that there are tutelary angels of
kingdoms and cities, and even of particular persons, called
guardian angels.

The ancient Romans, it is certain, had their tutelary gods,
whom they called Penates; which fee. And the Romish
church to this day, hold an opinion not much unlike it; they
believe that every perfon, at least every one of the faithful,
has, from the time of his birth, one of those tutelary an-
gels attached to his perfon, to defend him from all tempta-
tions; and it is on this, principally, that their practice of
invoking angels is founded.

F. Antony Macedo, a Portuguefe Jefuit of Coimbra, has
published a large work in folio on the tutelary fants of all
the kingdoms, provinces, and great cities of the Christian
world; " Divi Tutelares Orbis Christiani," at Liébon,
1678.

TUTELINA, or TUTILINA, in Mythology, the goddes of
corn, who had the care of it when depofited in the granary.
She had a chapel on the Aventine mount, and a flature in
the Circus.

TUTENAG, a name given in India to the femi-metal
zinc. It is also fometimes applied to denote a white metallic
compound, brought from China, called also Chenfe, or
white copper, the art of making which is not known in Eu-
rop.e. It is the bell imitation of silver which has been made:
it is very tough, fsorc, malleable, may be easily caf, ham-
mered, and polished; and the better kinds of it, when well
manufactured, are very white, and not more difpol'd to tarn-
ish than silver is.

Three ingredients of this composition may be discovered
by analysis, viz. copper, zinc, and iron. See Alleg of
Comptum.

TUTESERAL, in Geography, a town of Hindoostan,
in Lahore; 14 miles E.S.E. of Sultanpur.

TUTIA, or TUTILIA, in Ancient Geography, a town of
Hither Spain.

TUTICUM, a town of Italy, in Saminium, called in
the Itinerary of Antonine, " Equus Tuticus."

TUTLING, in Geography, a town of Bavaria; 10 miles
N. of Passau.

TUTOR, in the Civil Law, is one chosen to look to
the perfon and eflate of children left by their fathers and
mothers in their minority. See Guardian.

By the custom of Normandy, the father is the natural
tutor of his children. A perfon nominated tutor, either by
testament, or by the relations of the minor, is to decline that
office if he have five children alive; if he have any other
considerable tutorage; if he be under twenty-five years of
age; if he be a priest, or a regent in an university; or if he
have any law-fuit with the minors, &c.

The marriage of a pupil, without the consent of his
 tutor, is invalid. Tutors may do any thing for their pupils,
but nothing againft them; and the fame laws which put them
under a necelssity of preferring the interest of the minors,
put them under an incapacity of hurting them. See
Parent.

TUTOR, Honorary. See Honourary.

Tutor is also ufed in our universities for a member of
some college or hall, who takes on him the instruction of
young students in the arts and faculties.

TUTORAGE, TUTELA, in the Civil Law, a term
equivalent to guardianship in common law, signifying an
office imposed on any one, to take care of the perfon and
effeets of one or more minors. See Guardian.

By the Roman law there are three kinds of tutorage.
Testamentary, which is appointed by the father's testament.
Legal, which is given by the law to the nearest relation.
And dative, which is appointed by the magistrate.

But in all crumbling provinces, as France, &c. all tu-
torages are dative and elective; and though the father have
by testament nominated the next relation to his pupil, yet is
not that nomination of any force, unless the choice be con-
firmed by that of the magistrate, &c.

By the Roman law, tutorage expires at fourteen years of
age; but in France, not till twenty-five years. A minor
quits his tutorage, and becomes free by marriage; in which
case a curator is given him.

TUTOVA, in Geography, a river of Moldavia, which
runs into the Brilat, 4 miles S. of Brilat, in the province of
Moldavia.

TUTSAN, in Botony. See Hypericum.

TUTTI, in the Italian Muye, is ufed to signify that all
the parts are to play together, or to make a full concert.

In this fense, tutti flands oppofed to folo or fola.
It is often ufed exprefsed by annu, ripieno, ebual, &c.

Tuttu, in Geography, a town of Bengal; 13 miles
N.N.E. of Burraw.

TUTTLINGEN. See Duttingen.

TUTTUM, a town of Hindoostan, in Bundelcund; 20
miles N.E. of Chatterpore.

TUTTY, Tutia Alexandrina, or Lutia Tuita, an argu-
lacens ore of zinc, found in Peru, formed on cylindrical
mounds into tubulous pieces, like the bark of a tree, and
baked
TUX

baked to a moderate hardness. This account of its original is supported by the authority of Teixeira and Douglas, and by its chemical properties. That the common opinion of its being a fubliminate produced in the European founderies, where zinc is melted with other metals, is erroneous, appears from hence, that tutty is not found, upon strict enquiry, to be known at those founderies; and by its confitting, in a great part, of an earth not capable of rising in fublimation. This, however, is probable, that fublimates, or the common ores of zinc, are often mixed with argillaceous earths, and baked hard, in imitation of the genuine oriental tutty. Bontius, in his animadversions upon Garcias ab Orta, informs us, that it is made of a glutinous or argillaceous earth, like clay, found in great quantities in a province of Peria, called Kirman, which the Indians, who gather it, put into earthen pots made on purpose, and, adding water to it, stir it with a fick: these pots are then placed in furnaces till the water is evaporated; afterwards removing the dregs which remain at the bottom, they pick off from the fides of the pots the calcined earth or tutty, which they carefully preserve for sale. He adds, that it is used in India as a cosmetic for destroying hair, more efpecially by the women, when they bathe.

Tutty is generally of a brownish colour, and full of small protuberances on the outside, smooth and yellowish within, sometimes whitith, and sometimes with a blueish cast. Like other argillaceous bodies, it becomes harder in a strong fire; and after the zinc has been revived and diffipated by inflammable additions, or extracted by acids, the remaining earthy matter affords with oil of vitriol, an aluminous salt.

Tutty, levigated into an impalpable powder, is, like the lapis calaminaris and calces of zinc, an useful ophthalamic, and frequently used as such in ointments and collyria.

Ointments for this intention are prepared in the shops, by mixing the levitated tutty with fo much viper's fat as is sufficient to reduce it to due confluence, or, by adding one part to five parts of a simple liniment made of oil and wax.

See ZINC.

TUTUACA, in Geography, a town of Mexico, in the province of Hiaquil; 100 miles E. of Riochico.

TUTULUS, among the Romans, a manner of dressing the hair, by gathering it up on the forehead into the form of a tower.

TUTULUS likewise signifies a woollen cap with a high top.

TUTURA, in Geography, a town of Ruffia, in the government of Irkutsk, on the Lena; 160 miles N. of Irkutsk. N. lat. 44° 40'. E. long. 105° 44'.

TUTZIS, in Ancient Geography, a town of Egypt, between Tan湘 and Pticlia. Anton. Itin.

TUUVE, in Geography, a lake of Norway, about 20 miles in circumference; 52 miles from Christianfand.

TUXAL, a town of Hindoostan, in the circuit of Sirhind; 60 miles N.N.E. of Sirhind.

TUXFORD, a small market-town in South Clay division of the wapentake of Baffetlaw, in the county of Nottingham, England; is situated 24 miles N. by N. from the county-town, and 138 miles N. by W. from London. It was destroyed by fire September 8, 1702; consequently its appearance is more modern than that of many other towns in the county. Great part of it consists of farm-houses; agriculture being the chief employment of the inhabitants. Scarcely any trade is carried on here, except in hops, of which a considerable quantity is raised in this and the adjacent parishes. A fair for this is annually held in September; and another in May for cattle, sheep, pigs, and poultry. A weekly market on Mondays is well supplied in proportion to the population of the parish; which, in the return to parliament in the year 1811, is stated to be 841, occupying 197 houses. The church is an ancient structure, and consists of a nave, side-aisles, and chancel; with a spire. It contains the mutilated remains of monuments and other sculpture of a remote period. A rude representation of St. Lawrence on a gridiron is still entire; one man is employed in blowing the fire, another is turning the faint with tongs, and a third appears to be a spectator, or director. A free grammar-school, still in high repute, was founded, and liberally endowed, by the will of Mr. Charles Read, dated the 30th of July, 1699. A manuscript copy of the regulations, as contained in the will, is preserved in the British Museum.—History of Nottinghamshire, by J. Throffy, 3 vols. 4to. 1797. Beauties of England and Wales, vol. xii. Nottinghamshire.

TUXIUM, in Ancient Geography, a town of Italy, and capital of Samium. When Fabius Fabricianus pillaged this city, he removed the statue of the victorious Venus, worshipped here, to Rome. Plutarch.

TUX, in Geography, a town of Spain, in Galicia, situated on a mountain, near the north side of the Minho, opposite Valence, in Portugal; the seat of a bishop, suffragan of Compostella. In a war between Spain and Portugal, this is one of the places of rendezvous for the Spanish troops; 50 miles S. of Compostella. N. lat. 42° 3'. W. long. 8° 37'.

Tuy, a navigable river of Caraccas, which discharges itself into the ocean, 30 leagues E. of the port of Guayra. It rises in the mountains of San Pedro, 10 leagues from Caraccas, and being joined by the Guayra, becomes navigable, and serves for the transportation of produce, abound in the valleys of Aragoa, Taceta, Cus, Sabana, Ocumara, St. Lucia, and St. Thersea, through which it passes, and particularly caecus, which is here of the beet quality.

TUYU, a country of South America, in Patagonia, to the south of the viceroyalty of Buenos Ayres.

TUX-KURMA, a town of Curdiñan; 50 miles S.S.W. of Sherezur.

TUXLA, a town of Astatic Turkey, in Caramania, situated at the western extremity of a lake, to which it gives name. The lake is 36 miles in length, and about 4 in breadth; 28 miles N. of Cogni.—Alfo, a town of Astatic Turkey, in Natolia; 24 miles E. of Conflantimole.

TWAGER, a town of Sweden, in the province of Holland; 28 miles N.N.W. of Halmifd.

TWAITIE, in Ichthyology. See SHAD.

TWAITIE, in our Old Writers, a wood grubbed up and converted into arable land.

TWA-NIGHTS GESTE, in our Ancient Customs. See Third-night acen Hynde.

If the twa-night's geife did any harm to any, his hoft was not answerable for it, but himself.

TWARDONICE, in Geography. See Turnitz.

TWARSIMIRKA, a town of Silefia, in the principality of Oels; 6 miles N.E. of Militch.

TWASHTA, or TWASHIT, in the Mythology of the Hindoos, a name of the fun, or of its regent Surya. The name occurs as of the fun in the article SARASWATI. Other legends make Twashita the parent of Suranah, one of Surya's wives. In some points he corresponds with Vulcan, or Dedalus; being profoundly skilled in the mechanical arts, and hence deified in gratitude for his useful inventions. He seems to be the same personage with Vifwakarnas; being, like him, called the "chief engineer of the gods." Mr. Wilford's learned Essay on the sacred ifles of the Weft, in the
the eleventh volume of the Asiatic Researches, contains many curious particulars of this disfigured perfom, proving his identity with some western fable. See SuraunU, SuryA, and VrwikarmA.

TWAT, in Geography, a country of Africa, in the Great Desert. N. lat. 22° to 25°. E. long. 4° to 6°.

TWEDDA, a town of Sweden, in the province of Smalda; 42 miles N.N.W. of Calmar.

TWEDDS, a town of Norway, in the province of Christiansland; 4 miles N. of Christiansland.

TWEEED, a large river, which rises in the parish of Tweedsmuir, in the shire of Peebles, Scotland. It is remarkable, that from the base of the fame hill three large rivers have their source. The river Annan rises on its southern side, the Clyde on the north-west, and the Tweed on the north-east side. Taking a north-east direction, the Tweed runs a serpentine course of about forty miles through the county of Peebles. When it has reached the town of that name, which is about the centre of the shire, it has fallen nearly 1000 feet, as that town stands only about 500 feet above the level of the sea. In its course from Peebles, running nearly east, its stream is augmented by the Etterick near Selkirk, the Gala at Galashiels, the Leader near Melrose, and the Teviot at Kelso. A few miles below the latter town it leaves Roxburghshire, and forms, for 22 miles, the boundary between Berwickshire and England, till it falls into the German ocean at the town of Berwick: its whole course is 102 miles, being the longest river in the south of Scotland.

On the banks of the Tweed are many beautiful and romantic feats, embooned in plantations of various kinds of trees: but small are the vestiges that now remain of those extensive natural woods with which its banks were once adorned. Being near the southern borders of the kingdom, and exposed to the frequent incursions of the English, there is perhaps no river in Scotland, on the banks of which are to be seen so many places of defence against their hostile depredations. Still the ruins of castles and towers (as they are called) are visible; but they now only exhibit faint remains of their former magnitude, the wealth of their ancient inhabitants, and the deprecatory spirit which formerly prevailed. The Tweed abounds with trout of every species: the salmon-fishery was formerly very productive, but has been nearly destroyed through interred artifice. The Tweed is open to fishing from the 10th of January to the 10th of October. On this river, 41 different salmon fisheries have been rented for several thousand pounds a year. — Beauties of Scotland, vol. ii. Tweeddale, 1805. Chalmers’ Caledonia, vol. ii. 4to. 1810.

TWEEDEOUTH, a sea-port of England, in the county of Durham, separated only by the Tweed from Berwick. In 1811 the number of inhabitants was 5917.

TWEELEDING, an operation in weaving, which is performed by multiplying and varying the number of leaves in the harness; by the use of a back harness, or double harness; by increasing the number of threads in each split of the reed; by an endless variety of modes in drawing the yarns through the harness; and by increasing the number of tred- dles, and changing the manner of treading them. When the number of treddles requisite to raise all the variety of threds necessary to produce very extensive patterns would be more than one man could manage, recourse is had to a mode of mounting, or preparing the loom, by the application of cords, &c. to the harness; and a second person is necessary to raise the threds required, by pulling the strings attached to the respective leaves of the back harness, which are fast to their first position by means of leaden weights underneath.

Vol. XXXVI.

This is the most comprehensive apparatus used by weavers for fanciful patterns of great extent, and it is called the draw-loom. In weaving very fine silk twills, such as those of sixteen leaves, the number of threads drawn through each interval of the reed is so great, that, if woven with a single reed, this would obstruct each other in rising and sinking, and the thred would not be sufficiently open to allow the shuttle a free passage. To avoid this inconvenience, other reeds are placed behind that which strikes up the weft; and the warp threads are so disposed, that those which pass through the same interval in the first reed are divided in pas- sing through the second, and again in passing through the third. By these means the obstruction, if not entirely re- moved, is greatly softened.

In the weaving of plain thick woollen cloths, to prevent obstructions of this kind, arising from the closeness of the set, and roughness of the threads, only one-fourth of the warp is funk and raised by one treddle, and a second is pressed down to complete the thred, between the times when every half of weft is thrown across. See Weaving.

TWELFTH-HUND, in our Ancient Customs, imports much the same fame with thame.

Among the English Saxons, those who were worth 1200s. were called twelve-hurds; and if any injury was done to them, satisfaction was to be made accordingly. See Hinden.

TWELFTH-Day, or Twelth-sidé, the festival of the Epiphany, or the manifestation of Christ to the Gentiles, so called, as being the twelfth-day, exclusive, from the Nativity, or Christmas-day.

TWELVE MEND, duodecim homines legales, otherwise called jury, or inquisiti, is a number of twelve persons, or upwards, as far as twenty-four; by whose oath, as to matters of fact, all trials pass, both in civil and criminal cases, through all courts of the common law in this realm. See Jury.

TWELVE Tabels, Laxus of. See Table.

TWELVE APotles, in Geography, a number of small islands at the west extremity of the Straits of Magellan, on the coast of Terra del Fuego, between Cape Pillar and Cape Defeada.

TWELVE IFones, or Twelve Apotles, islands on the south side of lake Superior.

TWELVE Pinos, Thé, or Brannabola, a tall ridge of almost perpendicular rocks in the western part of the county of Galway, Ireland, called Cunneenara. These mountains belong to the primitive formation.

TWELVE-MILE CREEK, a river of South Carolina, which runs into the Saluda, N. lat. 34° 50'. W. long. 81° 16'.

TWELVE-MONTH, the space of a year, according to the calendar months.

TWENTE, in Geography, a district of the state of Overijssel, of which Oldenzel is the capital.

TWENTY-FOUR MEND, men chosen every half year to redress the grievances of the mines and miners; but every man generally serves his year when chosen.

TWENTY-MILE CREEK, in Geography, a branch of the river Tombighe, in Georgia.

TWICE-LAID Cordage, is made of call rigging, as shrouds, fles, mooring and other cables, which, if not much worn, will make good ropes, &c. for many purposes, as small cable-laid ropes for warping ships, warming and much worn for cables, warming for large fles, netting for fles’ fides, &c.; ratings, leaffolding-ropes, ffm-yarn for feizings, &c.

To open a cable for making it into small ropes, hang the 3 Q strand
frand upon three hooks in the tackle-board, stretch it out tight upon the hooks in the fledge, and have till they are untwisted; then draw out the yarn.

When the yarn of this worn stuff is overhand, a little thin tar should be poured upon it, which will make it pliable, and lie better. The yarn unit for knotting will pick into oakum for caulking.

TWICKENHAM, in Geography, an extensive and populous village in the hundred of Isleworth, and county of Middlesex, England; is situated on the banks of the river Thames, at the distance of twelve miles W.S.W. from St. Paul's cathedral, London. The parish extends about three miles and a half in length, one and a half in breadth, and is nine miles in circumference: it is bounded on the east and north by Isleworth, on the west by Hanworth, Hampton, and Teddington, and on the south by the river Thames. It contains about 1830 acres, of which, according to a survey taken in the year 1635, about 630 were arable, 450 pature, 40 wood, and 650 common: which does not much vary from the present proportion, reckoning the fruit gardens, of which there are above 150 acres, among the arable land. The gardens have long been celebrated for good management and abundant produce, and they afford a constant supply to the London markets: one gardener, Mr. Weft, has, in a good season, sent upwards of 4000 gallons of raspberries to a distiller within fifteen days. Twickenham is not mentioned in the Domesday record, as the whole of this hundred seems to have been included, when that survey was made, in the manor of Isleworth. In ancient records, the name is written Twitham, Twittanham, and Twickenham: and the most popular writers of the early part of the last century often termed it Twitvenham. The manor of Twickenham appears to have been possessed by the religious long antecedent to the Norman conquest; for the jurisdiction of the lord of Isleworth did not extend to church lands. This manor appears to have been vested in the crown in the time of Henry VIII., and by him annexed to the honor of Hampton-Court. By Charles I. it was settled as part of the jointure of his queen, on whose death, Charles II. settled it for his life, on his consort, Catherine. A lease under the crown has since been granted to several persons. The manor-house stands opposite to the church, and is traditionally said to have been the residence of Catherine of Aragon, the divorced queen of Henry VIII. The parli-church is situated near the river-side: the old church fell to the ground in the night of April 9, 1713; the tower, which is composed of freestone, is still remaining; the body was rebuilt, and completed in the year 1715. This is a brick fabric of the Tuscan order, with stone coigns and cornices, and was erected after the design of John James, architect, who likewise built the churches of St. George, Hanover-square, and St. Luke, Middlesex. The interior is spacious, with galleries on the two sides, and at the well end. The monuments, tables, and other sepulchral memorials, are numerous. A chapel, called Montpelier, was built about the year 1720, and is the private property of the Rev. G. O. Cambridge, archdeacon of Middlesex. Here is also a meeting-house for Wesleyan Methodists. A charity-school for boys, and a similar institution for girls, were established many years back: an extensive and appropriate building has been recently erected by subscription; and one hundred boys and seventy girls are now educated according to Dr. Bell's plan. Thirty of the boys, and twenty-four girls, are likewise clothed. Here are also two Sunday schools. Six almshouses were built in 1704, and six more in 1721. In the population return of the year 1711, this parish is stated to contain 685 houses, and 3757 inhabitants. The principal manufacture is that of gun-powder: the powder-mills, formerly the property of Mr. Hill, but now of Mr. Butts, are seated on the small river Crane, which, rising in the vicinity of Harrow, is here augmented by an artificial cut from the Colne. Accidents frequently occur in this dangerous business: one corning-house for grinding powder was twice blown up in the year 1795; in the months of January, July, and November. Fourteen lives were lost by the three explosions. Five similar explosions have since happened; and yet, notwithstanding the frequency of these accidents, and though the wages of the workmen is but small, employment in the mills is eagerly fought after: the only apparent reason is, that the labour is light.

Twickenham Park, Isleworth Park, or the New Park of Richmond, was, towards the end of the sixteenth century, the property of the great Sir Francis, afterwards lord, Bacon, who passed in this retirement the earlier and more happy part of his life. He here entertained queen Elizabeth, on which occasion he presented her with a fomat in praise of her favourite, the earl of Essex. The estate has recently been divided into lots, and the greater part purchased by Francis Golling, esq. The grounds contain some fine elms: and it is believed, that the first weeping willow known in this kingdom was planted in this park in the early part of the last century. Part of the mansion is in the parish of Isleworth: in the meadows, between this house and the river, was the original site of Sion monastery, founded by king Henry V. in 1414.

Twickenham has for a century past been the resort of person distinguished by their rank or literary fame; and there has been embellished with various mansions and villas, to which a degree of celebrity has attached. We shall briefly notice the most interesting.

Marble Hill was built by king George II. as a villa for his mistress, the countess of Suffolk. The purchase of the estate is said by lord Orford to have cost the king ten or twelve thousand pounds. The house was erected after a design of Henry, earl of Pembroke, who superintended the progress of the structure. Its exterior is of a plain but well-proportioned character; the interior contains the principal attractions, and is finished in a delicate, costly, and ornamental style. The great staircase is entirely composed of mahogany, finely carved; and the flooring of the ball rooms are of the same wood. This feat is now the residence of Charles Augustus, Earl Of Talbot, esq.

Pope's villa, as it has long been emphatically called, from its having been, for nearly thirty years, the residence of our great poet Alexander Pope, was purchased by him in the year 1715. The improvement of the house and gardens was for many years his favourite employment; and he was particularly interested in the construction of a grotto, which he enriched with many curious sars and gems; from the grotto was a subterraneous passage to the gardens. On the decease of Pope, which occurred May 30, 1744, the estate was sold to Sir William Stanhope, who added wings to the house and enlarged the gardens. From him it passed to his son-in-law, Welborne Ellis, afterwards lord Mends, who guarded every memorial of the poet as a sacred relic, particularly a fine willow planted by his own hand. This tree his lordship propped with affidious care, but notwithstanding his utmost attention, it perished and fell to the ground in 1801, about a year before the death of its noble owner. The estate was afterwards sold to sir John Hervey, and in 1807 purchased by baronets Hewett, under whose direction the house has been taken down, and a new dwelling erected about a hundred yards distant from the site. The grotto has been stripped of its most curious sars and minerals, by the zeal of those who wished
At Whiton, a hamlet in Twickenham parish, is a villa which was built about the year 1711 by Sir Godfrey Kneller, and was his principal residence during the latter part of his life. It is a substantial brick mansion, now the property of Mr. Calvert.

On the edge of Houndlow Heath, within this parish, are two villas of considerable elegance, formerly in the possession of Archibald, duke of Argyle, now occupied, one by Sir Benjamin Hobhouse, bart. the other by George Golling, eqq. — *Lyons’s Environos of London*, 5 vols. 4to. 1792—1811. *Beauties of England and Wales*, vol. x. Middlesex, by J. N. Brewer, 1816.

**TWIFALLOW**, in *Agriculture*, a term used to signify a second trifling or following of land.

**TWIFALLOWING**, the operation or work of repeating the tillage of land in following, which is mostly best performed about the middle of the summer. It is sometimes written twyfallowing.

**TWIGGS**, in *Geography*, a county of Georgia, in the United States, containing 3405 inhabitants.

**TWI-HINDI**, or *Twyhindi*, among our Saxon ancestors were men valued at 200. See *Hindeni*.

These men were of the lowest degree; and if such were killed, the mulct was 30s. In *Leg. Hen. I. cap. 9*, "de twihindi homines interdicti, vero debet reddi fecundum legem." Where note, that this was not an introduction of a new law, but a confirmation of the old, made in the reign of King Alfred.

**TWILIGHT**, in *Astronomy*, denotes the dubious or faint light which is reflected to us by means of the atmosphere, for some time before the sun rises, and after he sets. See *Crepusculum* and *Atmosphere*.

The following table shews the duration of twilight in different latitudes: it is calculated on a supposition that the twilight begins and ends when the sun is 18° below the horizon: the letters c. d. signify that it is then continual day; c. n. continual night; v. n. that the twilight lasts the whole night.

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**TWIN**, in *Geography*, a township of Preble county, in the district of Ohio, containing 719 inhabitants.—Allo, a township of Ross county, in the same district, containing 1053 inhabitants.

**TWIN, North**, an island in James’s Bay, Hudson’s Bay. N. lat. 53° 20’. W. long. 86° 40’.

**TWIN, South**, an island in James’s Bay, Hudson’s Bay. N. lat. 52° 10’. W. long. 86° 36’.

**TWIN Oat**, in *Agriculture*, a name sometimes applied to an early kind of white oat, which is very productive on deep good land, and which affords full crops on most sorts that are not too poor in quality. It commonly yields somewhat more than the pollard oat. See *Oat*.

**TWINE.** *Bolt-ropc twine*, used in fewing falls to their bolt-ropc, is made of the long hemp, or from the long rough hemp unbeat. It contains two or three threads, is twisted fack, and wound into half-pound leams containing two hundred yards. Eight threads are spun out of half a pound of hemp, each fifty yards long.

**Seal-twine**, for seal-nets, is made of twelve threads, two threads first twined together, then fix of them hardended together, and wound up into half-shakes, or eighty yards.
TWI

Seeming or fail-maker's twine, for sewing the seams of fails, is made of the best long hemp, beated, spun fine, and well dressed over a fine clearer; eighteen threads are spun out of half a pound of hemp, every thread being fifty yards in length: two threads are twisted together slack, and wound on a reel, in half-pound strands containing four hundred and fifty yards: but twine of three threads is used in the navy.

Tendril-twine is made from good long hemp, each thread spun fifty-four yards: three threads are laid together. When hardened and stretched, each cord stands fifty yards; nine hundred yards are wound on a reel, and eighteen cords weigh two pounds.

Stores-twine, used by fail-makers for old work and on board of ships, is made from good long hemp, well dressed. Fourteen threads are spun from half a pound; two threads are twisted together, and wound into half-pound strands of three hundred and fifty yards.

Turtle-twine, for turtle-nets, is made of good bar hemp, spun one hundred yards; three threads are laid together, stand ninety yards, and weigh one pound.

Whipping-twine, the same as bolt-robe twine.

TWIX 

Iron's, square bars with an eye-hook at one end, which grasp the porter or the flark of an anchor to turn it over.

TWINKLING of the Stars, denotes that tremulous, vibratory, intermittently motion, which is observed in the light proceeding from the fixed stars: Alhazen, an Arabian philosopher of the twelfth century, considers reflection as the cause of this phenomenon.

Vitello, in his Optics, published in 1270, p. 449, ascribes the twinkling of the stars to the motion of the air in which the light is refracted; and he observes, in confirmation of this hypothesis, that they twinkle fill more when they are viewed in water put into motion.

Dr. Hooke (Microgr. p. 231, &c.) very reasonably attributes this phenomenon to the inconsistent and unequal refraction of the rays of light occasioned by the trembling motion of the air and interposed vapours, in consequence of variable degrees of heat and cold in the air, producing corresponding variations in its rarity or density, and also of the action of the wind, which must cause the successive rays to fall upon the eye in different directions, and consequently upon different parts of the retina at different times, and also to hit and miss the pupil alternately; and this is also the reason, he says, why the limbs of the sun, moon, and planets appear to wave or dance.

These tremors of the air are manifest to the eye by the tremulous motion of shadows cast from high towers; and by looking at objects through the smoke of a chimney, or through streams of hot water, or at objects situated beyond hot fands, especially if the air be moved transversely over them. But when stars are seen through telescopes that have large apertures, they twinkle but little, and sometimes not at all. For, as Sir Isaac Newton has observed, (Opt. p. 98.) the rays of light which pass through different parts of the aperture, tremble each of them apart, and by means of their various, and sometimes contrary tremors, fall at one and the same time upon different points in the bottom of the eye, and their trembling motions are too quick and confused to be separately perceived. And all these illuminated points constitute one broad lucid point, composed of those many trembling points confusedly and inextricably mixed with one another by very short and swift tremors, and thereby cause the star to appear broader than it is, and without any trembling of the whole.

Dr. Jurin, in his Essay upon Diffinition and Indiffinition, has recourse to Sir Isaac Newton's hypothesis of fits of easy refraction and reflection for explaining the twinkling of the stars: thus, he says, if the middle part of the image of a star be changed from light to dark, and the adjacent ring be at the same time changed from dark to light, as must happen from the least motion of the eye towards or from the star, this will occasion such an appearance as twinkling.

Mr. Michell (Phil. Trans. vol. viii. p. 262.) supposes that the arrival of fewer or more rays at one time, especially from the smaller or more remote fixed stars, may make such an unequal impression on the eye, as may, at least, have some share in producing this effect; since it may be supposed, that even a single particle of light is sufficient to make a sensible impression upon the organs of sight; so that a very few particles arriving at the eye in a second of time, perhaps not more than three or four, may be sufficient to make an object constantly visible. See Light.

Hence, he says, it is not improbable, that the number of the particles of light which enter the eye in a second of time, even from Sirius himself, may not exceed three of four thousand, and from stars of the second magnitude they may, therefore, probably not exceed a hundred. Now the apparent increase and diminution of the light, which we observe in the twinkling of the stars, seem to be repeated at not very unequal intervals, perhaps about four or five times in a second. He, therefore, thought it reasonable to suppose, that the inequalities which will naturally arise from the chance of the rays coming sometimes a little denser, and sometimes a little rarer; in so small a number of them, as must fall upon the eye in the fourth or fifth part of a second, may be sufficient to account for this appearance. An addition of two or three particles of light, or perhaps a single one, upon twenty, especially if there should be an equal deficiency, out of the next twenty, would, he supposed, be very sensible, as he thought was probable from the very great difference in the appearance of stars, the light of which does not differ so much as is commonly imagined. The light of the middlemost star in the tail of the Great Bear does not, he thinks, exceed the light of the very small star that is next to it, in a greater proportion than that of about 16 or 20 to 1: and M. Bouguer found, that a difference in the light of objects, of one part in sixty-six, was sufficiently distinguishable.

Since these observations were published, Mr. Michell (as we are informed by Dr. Prieifley, Hist. of Light, p. 459.) has entertained some suspicion, that the unequal density of light does not contribute to this effect in so great a degree as he had imagined; especially in consequence of observing that even Venus does sometimes twinkle. This he once observed her to do remarkably when she was about five degrees high, though Jupiter, which was then about sixteen degrees high, and was faintly less luminous, did not twinkle at all. If, notwithstanding the great number of rays, which, without doubt, come to the eye from such a surface as this planet presents, its appearance be liable to be affected in this manner, it must be owing to such undulations in the atmosphere, as will probably render the effect of every other cause altogether inappreciable.

M. Mufchenbroeck (Introd. ad Phil. Nat. vol. ii. sect. 1741, p. 707.) supposes, that the twinkling of the stars arises from some affection of the eye, as well as the state of the atmosphere. For, he says, that in Holland, when the weather is frosty, and the sky very clear, the stars twinkle most manifestly to the naked eye, though not in telescopes; and since he does not suppose there is any great exhalation, or dancing of the vapour at that time, he questions whether the vivacity of the light, affecting the eye, may not be concerned in the phenomenon.
But this philosopher might have satisfied himself with respect to this hypothesis, by looking at the stars near the zenith, when the light travels but a small part of the atmosphere, and therefore might be expected to affect the eye most sensibly. For he would not have perceived them to twinkle near so much as they do near the horizon, when much more of their light is intercepted by the atmosphere.

Some astronomers have lately endeavoured to explain the twinkling of the fixed stars, by the extreme minuteness of their apparent diameter; so that they suppose the light of them is intercepted by every mote that floats in the air.

To this purpose Dr. Long observes (Astron. vol. i. p. 170.) that our air near the earth is so full of various kinds of particles, which are in continual motion, that some one or other of them is perpetually passing between us and any star which we look at, and this makes us every moment alternately fee it and lose sight of it: and this twinkling of the stars, he says, is greatest in those which are nearest the horizon, because they are viewed through a great quantity of thick air, where the intercepting particles are most numerous; whereas stars that are near the zenith do not twinkle so much, because we do not look at them through so much thick air, and therefore the intercepting particles being fewer, come less frequently before them.

With respect to the planets, it is observed, that they, because they are much nearer to us than the stars, have a sensible apparent magnitude, so that they are not covered by the small particles floating in the atmosphere, and therefore do not twinkle, but shine with a steady light. The fallacy of this hypothesis appears from the observation of Mr. Michell, that no object can hide a star from us that is not large enough to exceed the apparent diameter of the star, by the diameter of the pupil of the eye; so that if a star was a mathematical point, the intercepting object must fill in equal size to the pupil of the eye: and, indeed, it must be large enough to hide the star from both eyes at the same time.

The principal cause, therefore, of the twinkling of the stars is now acknowledged to be, the unequal refraction of light, in consequence of inequalities and undulations in the atmosphere.

Besides a variation in the quantity of light, it may here be added, that a momentary change of colour has likewise been observed in some of the fixed stars. Mr. Melville (Edinb. Eff. vol. ii. p. 81.) says, that when one looks steadfastly at Sirius, or any bright star, not much elevated above the horizon, its colour seems not to be constantly white, but appears tinted, at every twinkling, with red and blue. Mr. Melville could not entirely satisfy himself as to the cause of this phenomenon; observing, that the separation of the colours by the refractive power of the atmosphere is, probably, too small to be perceived. Mr. Michell's hypothesis above-mentioned, though inadequate to the explanation of the twinkling of the stars, may pretty well account for this circumstance. For the red and blue rays being much fewer than those of the intermediate colours, and therefore much more liable to inequalities, from the common effect of chance, a small excess or defect in either of them, will make a very sensible difference in the colour of the stars.

TWINS, two young ones delivered at a birth by an animal which ordinarily brings forth but one. It has been greatly disfigured, which of two twins is to be esteemed the elder? The faculty of Montpellier have given it, that the latter born is to be reputed the elder, because first conceived: but by all the laws which now obtain, the first-born enjoys the privilege of seniority; and the custom is confirmed by the scripture instance of Esau and Jacob.

But if two twins be born so intermixed, that one cannot distinguish which of the two appeared first, it should seem that neither the one nor the other can pretend to the right of primogeniture, which ought to remain in suspense by reason of their mutual concourse. In such case, some would have the decision left to the father, and others to the chance of a lot.

In cattle, twins are seldom desirable, as they can rarely be well supported, though occasionally cows are capable of suckling two calves; but in sheep, it is often greatly desirable in different breeds or varieties. The frequency of twins in sheep is much influenced both by the condition of the ewes, and the state of vigour in the rams. Such flocks as are well fed, and pasture easily about the tapping time, usually produce a far larger proportion of twins, than those which have higher walks, or pastures which are of inferior quality. Twins too are the most frequent in the early part of the lambing season: all which shew the propriety of keeping the ewes well supplied, and of not letting the rams have too great a number put to them at such feasons.

Nice attention is necessary to twins at the time of lambing, by the person who has the charge of the business, to see that they are in every way properly taken care of.

TWINS, in Astronomy. See Gemini.

TWINS, in Geography, two small islands in the East Indian sea, near the island of Paraguay. N. lat. 9° 18'. E. long. 118° 3'.—Alfo, two small islands in the East Indian sea, near the north coast of the island of Flores. S. lat. 8° 2'. E. long. 122° 33'.

TWIST of a Rope, Cord, &c. See Rope.

TWIST, again, is used for the inside, or flat part of a man's thigh, upon which a true horsemann rides when on horseback.

TWIST a Horse, To, is violently to wind or twist his testicles twice about, which causes them to dry up, and deprives them of nourishment, and reduces the horse to the same state of impotency with a gelding.

TWISTE, in Geography, a river of Germany, which runs into the Erpe, near Valeckmarfen, in the duchy of Westphalia.

TWISTED COLUMN. See Column.

TWISTED Silks. See Silk.

TWISTED Thumb-Band, in Rural Economy, a term used to signify the band of hay or straw which is formed by means of the thumb and fingers, by twisting it with them, and employed in binding up trusses of these kinds for sale. See Truss.

TWITCH, in Agriculture, a name often applied to a very troublesome plant of the weed kind in tillage-land, of which there are several sorts, as the black, white, creeping, and some others. See Couch-Graft.

TWITCH-Rake, a name sometimes applied to a large tool of this kind, made use of in dragging and collecting the roots of couch together in arable land, by means of a horse. See Couch and Rake.

TWITE, in Ornithology. See Linnet.

TWO Brothers, in Geography, two small islands in the Chinefe sea. N. lat. 8° 30'. E. long. 105° 48'.—Alfo, two small islands in the East Indian sea, near the W. coast of Borneo. S. lat. 1° 32'. E. long. 109° 13'.—Alfo, two small islands in the East Indian sea, 27 miles from the E. point of the island of Madura. S. lat. 6° 50'. E. long. 114° 43'.—Alfo, two small islands in the East Indian
Two-Head Island, a small island near the S. coast of Ireland, and county of Kerry; 1 mile W. of Lamb's Head.  

Two-Headed Points, a cape on the S.W. coast of the island of Kodiak, in the North Pacific ocean, comprising a small island, which terminates to the N.E. by a low flat rocky point. South-westward from Two-headed Island the coast is low, and appears to be compact; but immediately to the northward of it, the shores descend abruptly into the sea, appear to be much broken, and form an extensive found, of which the flat rocky point may be considered as its S.W. point of entrance; from this, its N.E. point being low projecting land, lies N. 58° E. at the distance of nine miles. The several branches that appeared to flow into the Sound, seemed to wind toward the base of a connected group of high rocky mountains, which no doubt gave boundaries to their extent. N. lat. 56° 54'. E. long. 207° 5'.

Two Hills, a small island among the New Hebrides, in the South Pacific ocean. S. lat. 17° 15'. E. long. 166° 38'.

Two-Hill Island, a small island in the Mergui Archipelago. N. lat. 11° 27'.

Two Keys, two small islands in the bay of Honduras. N. lat. 17° 30'. W. long. 87° 52'.

Two-Saddle Island, an island in the Mergui Archipelago, about four miles long, and two broad. N. lat. 10° 42'.

Two Sifers, two small islands in the East Indian sea, covered with wood, and surrounded by a reef of coral rocks. S. lat. 5°. E. long. 106° 12'.—Alfo, two small islands in the Spanish main, near the Mosquito shore. N. lat. 11° 17'. W. long. 82° 55'.

Two Spots, small islands in the bay of Honduras, surrounded with rocks. N. lat. 16° 40'. W. long. 88° 20'.

TWOBILL, in Agriculture, the name of a tool commonly employed in cutting up roots in the work of paring and burning in the old mode. It is seen in fig. 7, in the plate on paring ploughs. It has sometimes the title of double-bitted mattock.

TWO-FURROW PLOUGH, a term sometimes applied to that of the double kind. It is often useful for cross-cutting land in different cafes, and in giving the last earth for turnip-crops.

TWO-FURROWING, a term used to signify double furrows, or the breaking up land by the double plough: it also implies trench-ploughing and sod-burying.

TWO-MEAL CHEESE, in Rural Economy, a term applied to that sort which is made from the skimmed milk of the evening, added to the new milk of the meal of the morning; that made from the next milk being termed one-meal. In some districts, as that of Gloucester, two-meal cheese is made of one meal or portion of coward or clean milk, and the fame of fuc. 35 is skimmed; but often two of the latter are used to one of the former. Hence this fort is sometimes called coward-cheese.

TWO-MOULD-BOARDED Cleaning and Earthing Hoe for Potatoes, in Agriculture, a tool of somewhat the plough kind, contrived for the purpose of cleaning and earthing up thee crops with. It has a wheel before to direct the depth of its working, with handles behind to regulate it. There is a sharp hoe attached to a fort of coulter-bar in front, with a mould-board on each side, capable of being let to different distances, by a kind of ferew in the middle, by which means the ground is pared and laid to the crops. It is considered a tool that produces much saving and advantage in the culture of potatos, and which performs its work very effectually.

TWO-PENCE, in Botany, a species of Lyssmachia, which fec.

TWO-THIRDS SUBSIDY. See Duty and Subsidy.

TWPUNT, in Geography, a town of Algiers, on the coast of the Mediterranean, defended by a fort; 30 miles N.W. of Tremecen. N. lat. 35° 18'. W. long. 1° 2'.

TWYBLADE, in Botany. See Ophiurus.

TYACUL, in Geography, a town of Hindooofian, in Myore; 10 miles S. of Colar.

TYAHTATOOA BAY, a bay on the coast of Owhyhee, one of the Sandwich iflands. N. lat. 19° 37'. E. long. 203° 54'.

TYANA, in Ancient Geography, a town of Cappadocia, in the Tyannidit prefecture; the only one in this prefecture, according to Strabo; but according to Ptolemy, there were three others. It was known as the native country of Apollonius Tyanaus, the celebrated impostor.

TYANA, in Geography, a town of Aflatic Turkey, in Natalo; 25 miles S.W. of Isis.

TYBEL, an ifland near the coast of Georgia, at the mouth of the Savanna: on it is a light-houfe. N. lat. 32°. W. long. 81°.

TYBEIN, See Dinuo.

TYBER, See Tibetans and Tyberinus. The Tyber appears on the reverse of a medal of Vepafaian, not only as a divinity, but also as the patron and protector of Rome. When Æneas refided in Italy, he performed religious ceremonies to this river, gave himself up to his protection, and prayed that he might be propitious to him.

TYBERINUS, a king of Alba, and from this prince having drowned himself in the Albuca, that river gained the name of Tyber, which it has ever since retained.

TYBOINE, in Geography, a township of Pennsylvania; 100 miles W. of Philadelphia.

TYCHE, in Ancient Geography. See Syracuse.

TYCHONIC Systen, or Hypothefis, is an order or arrangement of the heavenly bodies, of an intermediate nature between the Copernican and Ptolemaic, or participating alike of them both. See System.

TYDAL, in Geography. See Reden.

TYDII, in Ancient Geography, a people of Aflatic Saratia, who inhabited mount Caucafaus, according to Pliny.

TYE, Dr. in Biography, the beft English compofe of church music, anterior to Tallis, that our country can boast; for though his name does not appear in the lift of musicians of the chapel royal, or household establishment in the short reign of Edward VI., he was, doubtless, at the head of all ecclefiafal compofers of that period. Neither the state of the church, nor religious principles of its nominal members, were fo settled as to render it possible to determine, in these times, who among quiet and obedient subjects were Protetants, and who Catholics; for, during the conflict between the zealous of both religions, the changes were fo violent and rapid, that great flexibility or great
great diffimulation must have been practised by those who not only escaped persecution, but still continued in offices, either of church or state. The few who seem to have been truly pious and conscientious on both sides, suffered martyrdom in support of their opinions; the rest seem to have been either uncompromised, or fluctuating between the two religions. One of the principal evils which the champions for reformation combated, was the use of the Latin language in the service of the church; however, the best choral compositions produced by the masters of these times, that are come down to us, are to Latin words. Specimens remain of Dr. Tye's clear and masterly manner of composing for the church in that language, when he was at least a nominal Catholic, either during the reign of Henry VIII. or queen Mary; and the late worthy Dr. Boyce has given an admirable example of his abilities in the anthem for four voices, "I will exalt thee, O Lord," inferted in the second volume of his excellent "Collection of Cathedral Music, by English Masters." There is hardly any imitative to be found in the productions of composers for the church during his time, of a piece so conversant and regularly in any one key, as this is in the key of C minor, and its relatives; the harmony is pure and graceful; the time and melody, though not so marked and accented as in those of the best compositions of the last century, are free from pedantry, and the difficulty of complicated measures which this composer had the merit of being one of the first to abandon. That he translated the first fourteen chapters of the Acts of the Apostles into metre, in imitation of Sternhold's Psalms, which were the delight of the court in which he lived, was doubtless an absurd undertaking, and was not rendered less ridiculous by the elaborate music to which he fitted them, conforting of fugues and canons of the most artificial and complicated kind. Dr. Tye, however, if compared with his contemporaries, was perhaps as good a poet as Sternhold, and as great a musician as Europe could then boast; and it is hardly fair to expect more perfection from him, or to blame an individual for the general defects of the age in which he lived.

Tye, in Geography, a river of Virginia, which runs into James river, N. lat. 37° 30'. W. long. 79° 8'.

Tye, in Mining. See STREAMING.

Tye, in Sea Language, denotes a sort of runner, or thick rope, used to transmit the effort of a tackle to any yard or gaff, which extends the upper part of a fall.

The tye is either passed through a block fixed to the maff-head, and afterwards through another block moveable upon the yard or gaff intended to be hoisted; or the end of it simply fastened to the fall, yard, or gaff, after communicating with the block at the maff-head. Falconer. See JERS.

TYE, in Geography, a river of South Carolina, which runs into the Cangaree, N. lat. 34° 30'. W. long. 81° 45'.

TYERS, JONATHAN, in Biography, the late proprietor, and indeed the creator of Vauxhall gardens, (see VAUXHALL,) deserves a place among our biographical articles on many accounts. His taste, liberality, and spirit in supporting and ornamenting this elegant place of amusement with paintings by Hogarth and Hayman; an excellent band of music; an orchestra in the form of a temple in the open air, with an organ equal in size and workmanship to many of the most noble instruments of that kind in our churches; and a continual succession of ingenious exhibitions; rendered it a public place more attractive, admired, and imitated by foreigners, than any one our country could boast. In every part of Europe a nominal Vauxhall has been established; nor was there a theatre on the continent thirty years ago, with scenery and ballet pantomimes, without an attempt at representing Vauxhall.

The proprietor began with a small band of wind-instruments only, before he erected an orchestra, and furnished it with an organ; but in the summer of 1745, to render it still more attractive, he added, for the first time, vocal to his instrumental performances. Here the talents of many of our national musicians were first displayed and first encouraged; here Collet and Pinto on the violin, Snow on the trumpet, Millar on the basset, Worgan on the organ, &c. annually increased in merit and favour. Here Meffrs. Arne, Lowe, and the elder Reinhold sung during many years, with great applause, Dr. Arne's ballads, duets, dialogues, and trios, which were soon after circulated throughout the kingdom, to the great improvement of our national taste. During this first summer, his little dialogue of Colin and Phoebe, written by the late Mr. Moore, author of "Fables for the Female Sex," was constantly encored every night for more than three months successively.

But here the good sense, sound judgment, and good taste of the spirited proprietor of Vauxhall, appear to be看得 for the veneration and respect which he manifested for Handel; at a time when the health and favour of this great master were on the decline, and opposition had almost ruined him: it was then that Tyers erected, at his sole expense, the marble statue which still adorns the gardens; an honour which has seldom been conferred on a subject and a professional man, during his life-time, in any country, since the flourishing state of the Greeks and Romans. And as this transfaction does honour, not only to the genius of Handel, but to the public spirit of his votary, we shall relate it as recorded in the registers of the times.

April 15th, 1738, in the London Daily Post, a paragraph says: "The effigies of Mr. Handel, the famous composer of music, is going to be erected at Vauxhall gardens, at the expense of Mr. Jonathan Tyers." And on the 18th of the same month, "We are informed, from very good authority, that there is now near finished a statue of the justly celebrated Mr. Handel, exquisitely done by the ingenious Messrs. Roubillac, of St. Martin's-lane, statuary, out of one entire block of marble, which is to be placed in a grand niche, erected on purpose in the great grove at Vauxhall gardens, at the sole expense of Mr. Tyers, conductor of the entertainments there; who, in consideration of the real merit of that inimitable master, thought it just and proper that his effigies should preside in that place, where his harmony has so often charmed even the greatest crowds into the most profound silence and attention. It is believed, that the expense of the statue and niche cannot cost less than 300l.; the said gentleman, likewise, very generously took at Mr. Handel's benefit, fifty of his tickets."

May 2d, we have a farther account of this species of apotheosis, or laudable idolatry, in the following words: "Last night at the opening of the Spring-gardens Vauxhall, the company expressed great satisfaction at the marble statue of Mr. Handel, who is represented in a loofe robe, sweeping the lyre, and listening to its sounds; which a little boy sculptured at his feet seems to be writing down on the back of a violoncello. The whole composition is in an elegant taste."

Soon after, the following verses appeared:

"That Orpheus moved a grove, a rock, or stream,
By music's power, will not a fiction seem?
For here as great a miracle is shown—
A Handel breathing, though transform'd to stone."

TYFORY,
TYFORY, in Geography, a small island in the East Indian sea; 45 miles W. of Giliolo. N. lat. 1° 6'. E. long. 126° 28'.

TYGART'S VALLEY, a district of Pennsylvania, watered by the Monongahela river.

TYGER, in Zoology. See Tigern.

Tyger, in Geography, a river of South Carolina, which joins the Saluda, 5 miles N. of Columbia; and both together form the Congaree.

Tyger's Point, a cape of Afa, on the south-west coast of Ava, at the mouth of the Perfain. N. lat. 15° 50'. E. long. 94° 45'.

Tyger's Creek, a river of Kentucky, which runs into the Ohio, N. lat. 38° 22'. W. long. 83'.

Tyger's Island, a small island in the Chinefe sea, near the coast of Chiampa. N. lat. 10° 47'. E. long. 107° 45'. —Also, a small island in the Chinefe sea, near the coast of Cochinchina. N. lat. 16° 51'. E. long. 106° 13'.

Tyger Island, a small island in the Pacific Ocean, at the entrance of the bay of Amapalla. N. lat. 13° 10'.

Tyger Islands, a cluster of small islands and shoals in the East Indian sea; 30 miles E. from the island of Saleyer.

TY-GWYN, a village of South Wales, in the county of Caermarthen, where Howel Dha, first monarch of all Wales, had a palace: and in the year 942, a council was held, to form a body of laws. On this spot a Celtic temple was founded, called Whetfand Abbey; 5 miles W. of St. Clare.

TYING, in Music. See Legate-Note and Syncope.

TYKOCZYNS, in Geography, a town of Poland, in the palace of Bielk. In 1705, Augustus II. instituted the order of the White Eagle in this town; 28 miles N.W. of Bielk.

TYLANGIUM, in Ancient Geography, a town of the Peloponnesus, in Tribylia, according to Polybius.

TYLE, or Tile, in Building, a fort of thin, factitious, laminated brick, used on the roofs of houses, or more properly, a kind of flat clayey earth, kneaded and moulded of a Jut thicknes, dried and burnt in a kiln, like a brick, and used in the covering and paining of houses.

It is thus called from the French tuille, of the Latin tegula, which signifies the same.

Tiles are made, says Mr. Lelyburn, of better earth than brick-earth, and something near akin to the potter's earth.

By 17 Geo. III. c. 42, all combinations for enhancing the price of tiles and bricks, shall be void; and every tylemaker, or brick-maker, offending, shall forfeit 20l. and every clerk, agent, or servant, 10l.; half to the poor, and half to him who sues within fix calendar months.

By 43 Geo. III. c. 69, schedule (A.) and the 45 Geo. III. c. 32, in lieu of any duties of excise then subfizing, new duties were imposed.

The said duties on bricks and tyles to be paid by the maker or makers thereof respectively.

For the duties on exportation and importation, see the schedules annexed to the said act of 43 Geo. III. c. 69.

Provided always, that tyles made for the sole purpose of draining land, 19½ inches long by 13½ inches broad, and bent into a semi-elliptical form, the infide of the crown of the arch thereof being not less than seven inches perpendicular, from a straignt line drawn from the one to the other side thereof after the fame is fo bent, and such fides not being at any part thereof more than five inches dffant from each other on the infide, and as nearly of the dimenfion, and bent as nearly into the form aforesaid as may be, to be used for the purpofes aforesaid, shall not be fubjeft to any of the faid duties. 34 Geo. III. c. 15.—And the exemption is extended to tyles made for fuch purpofe not lefs than nine inches long; such being in every other repect of the fame description and dimenion as before preferred. 42 Geo. III. c. 93.

And by the 46 Geo. III. c. 138, it is further enacted, that ifemi-elliptic tyles not exceeding in infide width fix inches, and the height of which from the outside of the crown of the arch in a perpendicular line to the extreme edge shall in all cafes exceed the width, but with a foot from the bottom of the arch where neceffary, not exceeding two inches in breadth, made for draining wet or marfly lands, are exempted from the excize duty.

And any person using any fuch tyle for any other purpofe than above-mentioned, incurs the penalty of 6d. each ftye so used.

And every maker of bricks or tyles, before he begins to make, fhall leave or give notice in writing at the next excize office of his name and place of abode, and of the fhefs, workhoufes, or other places where fuch bricks or tyles are intended to be made; on pain of 100l. 24 Geo. III. c. 24. feff. 2.

All bricks and tyles chargeable with the said duties fhall be taken account of and charged by the officer whifft they are drying, after being turned out of the moulds, and before removed to the kiln or clamp for burning, for which purpose any officer may enter into the fields, fhefs, or other places where making, and fhall take an account thereof in writing, and leave a copy (if demanded) with fuch officer, on pain of 40l.: and if any person fhall obstruct fuch officer, he fhall forfeit 50l.

The officer charging the duty fhall allow ten for every hundred when charged in the field before burned, in compenfation for all waft, los or damages.

And if the maker fhall remove any bricks or tyles to the kiln or clamp or other place of burning from out of the field or place where they fhall be put or placed to dry before the officer fhall have taken an account thereof, he fhall forfeit 50l. And all fo carried away, and found in the poffeffion of any maker, or trader therein, or perfon for his use, fhall be forfeited and may be feized, or the value thereof fhall be forfeited. 25 Geo. III. c. 66.

Provided, that no fuch maker fhall be fubjeft to the faid penalty, if the officer fhall fail to take an account, on due notice given him three days before fuch removal. 24 Geo. III. c. 24. feff. 2.

The maker fhall keep the bricks and tyles unsurveyed separate from thofe that have been surveyed; on pain of forfeiting 50l. 25 Geo. III. c. 66.

And fuch maker fhall, while the fame are drying, place them in fuch manner as the officer may callly and securely take an account thereof; and if he fhall place them in an irregular or unusual manner, with intent to make it difficult or unsafe for the officer to take fuch account, he fhall forfeit 50l.

If any maker fhall fraudulently conceal or hide any bricks or tyles in any part of the operation of making, with intent to evade the duties, he fhall forfeit the fame, and also 20l. 24 Geo. III. c. 24. feff. 2.

Every fuch maker fhall once in every fix weeks make entry in writing upon his oath, or on the oath of his chief workman, at the next excize office, of all bricks and tyles by him made within that time, on pain of 50l. And fhall also, within six weeks after fuch entry, clear off all the duties then due thereon; on pain of double duty. And if any perfon fhall carry away, fuch bricks or tyles before the duty be cleared off, he fhall forfeit double the value thereof. But fuch
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such maker shall not for making such entry be obliged to go further than the next market-town.

And all tools, implements, and utensils used in making such bricks or tyles, in custody of the maker, &c. shall be liable to be forfeited for any debts or penalties, (arising or incurred under this act,) whether the debtor or offender be the lawful owner thereof or not. 28 Geo. III. c. 37.

Bricks or tyles for which the duties have been paid may be exported, and on security given before the shipping thereof, that the same shall not be relanded, the person exporting the same shall be allowed a drawback of such duties; and in case such bricks or tyles shall be relanded, the same shall be forfeited to the use of his majesty, over and above the penalty of such bond. 27 Geo. III. c. 13. seded. (F.)

All penalties and forfeitures are to be sued for, levied, and mitigated as by the laws of excise, or in the courts at Westminster, and to be distributed half to the king, and half to him that shall sue. 24 Geo. III. c. 24. sect. 2.

For the method of burning tyes, see Batec.

As to the applying of tyles, some lay them dry, as they come from the kiln, without mortar, or any thing else; others lay them in a kind of mortar made of loam and horse-dung. In some parts, as in Kent, they lay them in mors.

There are various kinds of tyles for the various occasions of building; as plain, thick, ridge, roof, croasf, gutter, pan, crooked, Flemifh, corner, hip, dorman or dormar, fealop, afferagal, traverss, paving, and Dutch tyles.

Tyles, Plain or Thick, are those in ordinary use for the covering of houses. They are fqueezed flat, white yet soft, in a mould. They are of an oblong figure, and by flat. 17 Edw. IV. c. 4. are to be ten inches and a half long, fix and a quarter broad, and half an inch and half a quarter thick. But these dimensions are not strictly observed.

Plain tyles are not laid in mortar, but only pointed in the inside.

Tyles, Ridge, Roof, or Croasf, are those used to cover the ridges of houses, being made circular, broadwise, like a guill cylinder. These are what Pliny calls latercular, and are by statute to be thirteen inches long, and of the same thick-nesses with the plain tyles.

Tyles, Hip or Corner, are those which lie on the hips or corners of roofs. As to form, they are first made flat, like plain tyles, but of a quadrangular figure, whose two sides are right lines, and two ends arcs of circles; one end being a little concave, and the other convex. The convex end is to be about seven times as broad as the concave end; so that they would be triangular, but that one corner is taken off; then, before they are burnt, they are bent on a mould, broadwise, like ridge tyles. They have a hole at their narrow end to nail them on by, and are laid with their narrow end upwards. By statute, they are to be ten inches and a half long, and of a convenient breadth and thickness.

These, as well as the ridge tyles, are to be laid in mortar, because they seldom lie so close as to admit any water to pass between them.

Tyles, Gutter, are those which lie in gutters or valleys in croasf-buildings. They are made like corner tyles, only the corners of the broad end are turned back again with two wings. They have no holes in them, but are laid with the broad end upwards, without any nailing. They are made in the same mould as corner tyles, and have the fame dimensions on the convex sides. Their wings are each four inches broad, and eight long.

These tyles are seldom used where lead is to be had.

Tyles, Pan, Crooked, or Flemifh, are used in covering Vol. XXXVI.

of sheds, stables, out-houses, and all kinds of flat-roofed buildings. They are in form of an oblong parallelogram, as plain tyles, but are bent breadthwise forwards and backwards, in the form of an S, only one of the arches is at least three times as big as the other, which biggest arch is always laid uppermost, and the left arch of another tyle lies over the edge of the great arch of the former. They have no holes for pins, but hang on the laths by a knot of their own earth. By 17 Geo. III. c. 42. they are to be, when burnt, not less than thirteen inches and a half long, nine and a half inches wide, and half an inch thick, on pain that the maker shall forfeit 10d. for every 1000.

Pan-tyles are laid in mortar, because the roof being flat, and many tyles being warped in the burning, they will not cover the roof so well as that no water pails between them.

Tyles, Dormar or Dormar, consist of a plain tyle, and a triangular piece of a plain one, standing up at right angles to one side of the plain tyle, and swept with an arc of a circle from the one end, which end terminates in a point. Of these tyles there are two kinds; the triangular piece, in some, standing on the right, in others on the left side of the plain tyle. And of each of these, again, there are two kinds, some having a whole plain tyle, others but half a plain tyle. But in them all, the plain tyle has two holes for the pins, at that end where the broad end of the triangular piece stands.

Their use is to be laid in the gutters, between the roof and the cheeks or fides of the dormars, the plain part lying on the roof, and the triangular part standing perpendicular by the cheek of the dormar. They are excellent to keep out the wet in those places, and yet they are hardly known any where but in Suffex. The dimensions of the plain tyle part are the same as those of a plain tyle, and the triangular part is of the same length, and its breadth at one end seven inches, and at the other nothing.

Tyles, Staleop or Afferagal, are, in all respects, like plain tyles, only their lower ends are in form of an afferagal, viz., a semicircle, with a square on each side. They are used in some places for weather tylings.

Tyles, Traverss, are a kind of irregular plain tyles, having the pin-holes broken out, or one of the lower corners broken off. These are laid with the broken end upwards, upon the rafters, where pinned tiles cannot hang.

Tyles, Flemifh or Dutch, are of two kinds, ancient and modern. The ancient were used for chimney foot-paces; they were painted with antique figures, and frequently with poruffles of soldiers, fome with compartments, and fome with morefque devices; but they came greatly short, both as to the design and colours, of the modern ones.

The modern Flemifh tyles are commonly used plastered up in the jambs of chimneys, instead of chimney corner- flones. These are better glazed, and fuch as are painted (for fome are only white) are much better performed than the ancient ones.

But both kinds seem to be made of the fame whitifh clay as our white-glazed earthenware. The ancient ones are five inches and a quarter square, and about three-quarters of an inch thick; the modern ones six inches and a half square, and three-quarters of an inch thick.

When these tyles are set with good mortar they lock beautiful, and call a greater heat than fome; for, being very smooth and glazed, the rays of heat striking upon them are all reflected into the work, especially when the fides of the chimneys are oblique, or in the form of circular arches. But they are little used.

Tylings is measured by a square of 100 square feet; and the number of tyles required for such a square depends on R
TYL

the distance of the laths, which, when six inches, requires 800; when six and a half inches, 740; when seven inches, 690; when seven and a half inches, 640; and when eight inches, 600 yoles.

TYLE, in Atticizing. See Tile.

TYLER, one that covers or paves with tiles.

Tylers and bricklayers were incorporated into Eliz. under the name of "Master and Wardens of the Society of Freemasons of the Mystery and Art of Tylers and Bricklayers." See Company.

Tylers, Great, in Geography, a small island in the Gulf of Finland. N. lat. 59° 50'. E. long. 27° 12'.

Tylers, Little, a small island in the Gulf of Finland. N. lat. 59° 48'. E. long. 26° 54'.

TYLERY. See TELLERIE.

TYLIS, in Ancient Geography, a town of Thrace, on mount Helmus.


The plants of this genus have twining, either herbaceous or shrubby, stems. Leaves opposite, membranous, flat. Umbels standing between the footstalks. Flowers for the most part small. Four of the species are natives of New Holland, chiefly within the tropic, but extending as far as thirty-three degrees of south latitude. As many are found either in the East Indies or the equinoctial parts of Africa, but of these four latter, none of them described in any botanical work, the learned author has favoured us with no account. We can therefore merely give the characters of the New-Holland species, from his Prodromus. It only remains for us to observe, that Tylophora comes very near Hoya, see that article, differing scarcely in any part of the essential character, except the want of a tooth at the inner angle of each leaf of the crown; and with respect to habit, distinguished from one only of the two species of that genus, by having membranous, not fleshy, leaves.

1. T. grandiflora. Large-flowered Tylophora. Br. n. 1. — Umbels nearly sessile, simple, of few flowers; their partial flasks smooth. Leaves heart-shaped, ovate, acute, downy as well as the branches. — Native of Port Jackson, New South Wales.


4. T. paniculata. Paniced Tylophora. Br. n. 4. — Panicles forked. Segments of the corolla ligulate upwards. Leaves ovate, pointed, nearly smooth; the lowermost somewhat heart-shaped. — Discovered in the neighbourhood of Port Jackson, by Mr. Ferdinand Bauer, the botanical companion of Mr. Brown, to whose exquisite pencil the duty of perpetuating the acquisitions of their hazardous expedition, undertaken at the national expense, was entrusted. Yet so little has the engagement to the public been fulfilled, that except a small but exquisite falciculus of plates, and the excellent but incomplete publications of Mr. Brown, all the discoveries of these naturalists have as yet remained fruitless; not, certainly, for want of their ability or inclination to complete what they have undertaken, but because, as we prefigure, the due injunctions, as well as the necessary aids, have been withheld.

TYLOS, in Ornithology, a name by which many authors have called the turtur ibis, or redwing.

TYLOTICA, medicines supposed to promote the formation of callus.

TYLSEN, in Geography, a town of Brandenberg, in the Old Mark, on the Dicime; 5 miles S.W. of Salzwedel.

TYLUS, in Ancient Geography, a town of the Peloponnesus, on the coast of the Gulf of Messenia, between the islands Tyrides and the town of Lencrata, according to Strabo; it is called Τύλος by Paulus, who places it between the port of Meza and Talama. — Also, an island of the Perisian gulf, at the distance of twenty-four hours' navigation from the mouth of the Tlepcompass, according to Arrian. — Also, Tylus minor, distant 10 miles in the same gulf from the greater Tylus; named Arados by Strabo, and Aratos by Ptolemy.

TYLWITH, in matters of Heraldry and Defers, is sometimes used for a tribe or family branching out of another, which the modern heralds more usually call the second or third house.

TYLYDAN, in Geography, a river on the S. coast of the island of Java, which runs into the sea, S. lat. 7° 38'. E. long. 108° 47'.

TYMARA, a town of Hindooftan, in Bahar; 25 miles E. of Chuta Nagpour.

TYMBALES, Fr. kettle-drums, instruments of percussion, consisting of two metaline globes covered with parchment; beaten with two drum-sticks, in the form of round hammers or mallets, from eight to nine inches long. The tone is short and dull. They are tuned 4th to each other. The smallest drum produces the key-note of the compositions in which they are employed, and the largest, the 4th below; as in the key of C the tones are these: —

There are braces, by which the pitch can be raised or lowered at pleasure. See Drum, and Kettle-Drum.

TYMBER of Skins. See Timber.

TYMBRA, in Ancient Geography, a town of Asia, in Pifidia.

TYMBRE, Fr. in Myfics, is a term used to express that quality of tone or sound which renders a voice or instrument rough or smooth, harsh or sweet, coarse or mellow in tone. Sweet-toned instruments seem always sweet, and harsh-toned too loud. A perfect voice or instrument would be that which united force with sweetness. The quality of tone generally determines our idea of its force. The voice of Mazzoli, at once extremely powerful and extremely sweet, was miraculous.

There are perhaps no instruments that can be at once loud and sweet, except those of the violin family, played with a bow; as the violin, tenor, and violoncello.

TYMENIUM, in Ancient Geography, a mountain of Asia, in the vicinity of Phrygia.

TYMES, a town of Africa, in Libya.

TYMIUM, a small town of Asia, in Phrygia.
TYMNISSUS, a town of Afia Minor, in Caria. 
TYMNUS, a town of Afia Minor, in Caria, which derived its name from the promontory called by Mela Tynnias.

TYMPAN, or TYPANUM, in Architecture, the area of a pediment, being the part which is in a level with the naked of the freeze. Or it is the space included between the three cornices of a triangular pediment, or the two cornices of a circular one.

Sometimes the tympan is cut out, and the part filled with an iron lattice, to give light; and sometimes it is enriched with sculpture, in bairo-releveo, as in the west front of St. Paul's, in the temple of Castor and Pollux at Naples, &c.

Tympan is also used for that part of a pedestal called the trunk or dye.

Tympan, among Joiners, is also applied to the pannels of doors.

Tympan of an Arch, is a triangular space or table in the corners or sides of an arch, usually hollowed and enriched, sometimes with branches of laurel, olive-tree, or oak; or with trophies, &c.; sometimes with flying figures, as Fame, &c. or sitting figures, as the cardinal virtues.

Tympan, in Anatomy, Mechanies, &c. See TYPANUM.

Tympan, among Printers, is a double frame belonging to the press, covered with parchment, on which the blank sheets are laid in order to be printed off. See Printing-Press.

TYPANOA, τυμπανα, among the Athenians, a capital punishment, in which the criminal, being affixed to the pole, was beaten to death with cudgels. Potter, Archæol. Græc. lib. c. 25. tom. i. p. 134.

TYPANIA, in Ancient Geography, a town of the Peloponnesus, in the interior of the Elide. Ptolemy.

TYPANITES, in Medicine, from τυμπανος, tympanum, a drum, a flatulent distension of the belly, which, when flruck, emits a sound which has been compared to the noise produced by that instrument. It has been called, in English, the tympany, and swindy dropy.

The tympanes is a swelling of the abdomen, in which the integuments appear to be much ftreched by some diftending power within, and they are equally ftreched in every position of the body. The fwellimg does not very readily yield to any prejudice; and as far as it does, being extremely elatic, it very quickly recovers its former flate, when the prejudice is removed. Being flruck, it gives an obfene sound, somewhat like that of a drum, or other ftreched animal membrane. No fluctuation within is to be perceived; and the whole feels less weighty than might be expected from its bulk. The uneafnefs from the definition is partially relieved by the discharge of wind from the alimentary canal, either upward or downward.

These are the charaets, then, by which the tympanites, or flatulent fwellimg of the belly, may be diftinguished from the afiec, or droply of that cavity, and from phyfemia, or folid tumours, sometimes occurring there; and many expeiments shew that the tympanites always depends upon a preternatural collection of air fomewhere within the teguments of the abdomen. But the fituation which the air occupies in different instances is somewhat different; and this produces the different species of the disease which nofologists have defcribed.

One species, and indeed the moft common and cureable species, is that in which the collected air is confined within the cavity of the alimentary canal, and chiefly in that of the intestines. This species, therefore, has been named the tympanites intestinals. (See Sauvages Nofol. Method.

Clafs. x. (ppec. 1.) To this species, indeed, which is the moft frequent, the charaet above given especially belongs.

A second species is, when the air collected is not entirely confined to the cavity of the intestines, but is also prefent between their coats; and such is that which is named by Sauvages tympanites enterophysis (Sauv. ppec. 3.) This has certainly been a rare occurrence; and has probably occurred only in consequence of the tympanites intestinalis, by the air escaping from the cavity of the intestines into the interticles of the coats. It is, however, possible, that an erofion of the internal coat of the intestines may give occasion to the air, to conflantly prefent in their cavity, to escape into the interticles of their coats, though in the whole of their cavity there has been no previous accumulation.

A third species is, when the air is collected in the face of the peritoneum, or what is commonly called the cavity of the abdomen, that is, the space between the peritoneum and vifeera; and then the disease is named tympanites abdominalis. (Sauv. ppec. 2.) The existence of such a tympanites, without any tympanites intestinalis, has been disputed; and it certainly has been a rare occurrence; but from several defections, it is unquestionable that such a disease has sometimes truly occurred.

A fourth species of tympanites is, when tympanites intestinals and abdominalis are joined together, or take place at the fame time. With refpect to this, it is probable that the tympanites intestinalis is the primary disease; and the other only a confequence of the air escaping, by an erofion or rupture of the coats of the intestines, from the cavity of thefe, into that of the abdomen. It is indeed poifible, that in confequence of erofion or rupture, the air which is fo conftantly prefent in the intestinal canal, may escape from thence in fuch quantity into the cavity of the abdomen, as to give a tympanites abdominalis, whilfe there was no previous confiderable accumulation of air in the intestinal cavity itself; but we have no facts by which to afcertain this matter properly.

A fifth species has also been enumerated. It is when a tympanites abdominalis happens to be joined with the afiects, or droply of the belly; and fuch a disease therefore is named by Sauvages tympanites oftiehus. (Sauv. ppec. 4.) In moft cafes of tympanites, indeed, fome quantity of ferum has, upon defection, been found in the face of the peritoneum; but that is not enough to confitute the species now mentioned; and when the collection of ferum is more confiderable, it is commonly where, both from the caufes which have preceded, and likewise from the symptoms which attend, the afiects may be conftdered as the primary disease; and therefore that this combination does not exhibit a proper species of the tympanites.

As this laft is not a proper species, and as fome of the others are not only extremely rare, but even, when occurring, are neither primary nor to be easily diftinguished, nor, as confidered in themselves, admitting of any cure, it will be unneceffary to take any farther notice of them: we shall therefore configure ourselves, in what follows, to the confideration of the moft frequent cafe and almost the only object of practice, the tympanites intestinals.

With refpect to this, it does not appear that it arises in any peculiar temperament, or depends upon any predifposition, which can be diftinguished. It occurs in either sex, at every age, and frequently in young persons.

Various remote caufes of it have been alledged; but many of these have not commonly the effect of producing this disease; and although fome of them have been truly antecedents of it, we can in few instances discover the
manner in which they produce the diseaft, and therefore cannot certainly aferm them to have been caufe of it.

The phenomena of this diseaft, in its feveral ftages, are the following.

The tumour of the belly fometimes grows very quickly to a confiderable degree, and seldom in the flow manner the affifes commonly comes on. In fome cafes, however, the tympanites comes on gradually, and is introduced by an un-
usual fluctuation of the flomach and inftines, with frequent borborygm, and an uncommonly frequent expulfion of air upwards and downwards. This ftate is also frequently at-
tended with colic pains, efpecially felt about the nave, and
upon the fides towards the back; but generally, as the dif-
cafe advances, these pains becomes confiderably. As the dif-
cafe proceeds, there is a partly conflant defire to dif-
charge air, but it is accompanied with difficulty; and when obtained, although it give fome relief from the fene of dif-
feftion, this relief is commonly transient and of short dura-
tion. While the difcafe is coming on, fome inequality of
theft, and tenfion may be perceived in different parts of
the belly, but the dilution foon becomes equal over the
whole, and exhibits the phenomena mentioned in the cha-
acter. Upon the firft coming on of the difcafe, as well as
during its progres, the belly is bound, and the faces dif-
charged are commonly hard and dry. The urine, at the
beginning, is ufually very little changed in quantity or quaf-
ity from its natural ftate; but as the difcafe continues, it is
commonly changed in both respects, and at length fomet-
times a faringury, and even an ichuria, comes on. The
difcafe has feldom advanced far, before the appetite is much
impaired, and digestion ill performed; and the whole body,
except the belly, becomes confiderably enceafed. Toge-
ther with these phenomena, a thrill and uncafy fene of
heat at length come on, and a confiderable frequency of
pulfion occurs, which continues throughout the courfe of the
difcafe. When the tumour of the belly aries to a confider-
able bulk, the breathing becomes very difficult, with a fre-
dquent dry cough. With all thofe phenomena, the ftrength of
the patient declines; and the fecile phenomena daily in-
creafing, death at length enfues, fometimes probably in con-
fequence of a gangrene coming upon the inftines.

The tympanites is commonly of fome duration, and to be
reckoned a chronic difcafe. It is very feldom quickly fatal,
except where fuch an affeétion suddenly aries in fevers.
To this, Sauvages has properly given a different appellation,
of meridifmus; and it may perhaps always be con-
fered as a symptomatic affeétion, entirely dilifant from the
tympanites which we are now confidering.

The tympanites is generally a fatal difcafe, feldom ad-
mitting of cure: but we fhall mention what may be at-
tempered in this way, after having endeavoured to explain
the proximate caufe, which alone can lay the foundation of
what may be rationally attempted towards its cure.

To aferm the proximate caufe of tympanites is fome-
what difficult. It has been fuppofed, in many cafes, to be
merely an uncommon quantity of air prefent in the alimenta-
tary canal, owing to the extrication and detachment of a
greater quantity of air than ufual from the alimentary
matters taken in. Our vegetable alimenta probably always
undergo fome degree of fermentation; and in confequence,
a quantity of air is extricated and defhched from them in the
flomach and inftines; but it appears, that the mixture
of the animal fluids which our alimenta meet with in the
alimentary canal, prevents the fame quantity of air from
being defhched from them that would have been in their
fermentation without fuch mixture; and it is probable that
the fame mixture contributes also to the re-afbortion of
the air that had been before in fome meafure detached.
The extrication, therefore, of an ufual quantity of air
from the alimenta, may, in certain circumftances, be fuch,
perhaps, as to produce a tympanites; fo that this difcafe
may depend upon a fault of the digestive fluids, by which
they become unfit to prevent the too copious extrication of
air, and unfit alfo to occasion that re-afboration of air,
which in found perfonal commonly happens. An ufual
quantity of air in the alimentary canal, whether owing to
the nature of the alimenta taken in, or to the fault of the
digestive fluid, does certainly ftomes take place; and
may possibly have, and in fome meafure certainly has, a
flare in producing the tympanites, but cannot be fuppofed to produce the
tympanites, which often occurs when no previous diforder
had appeared in the fystem. Even in thofe cafes of tym-
panites which are attended at their beginning with flatulent
diforders in the whole of the alimentary canal, as we know
that a firm tone of the inftines both moderates the extrica-
tion of air, and contributes to its re-afboration or ready ex-
pulfion, fo the flatulent phenomena which happen to ap-
pear at the coming on of a tympanites, are probably referred to a
lofs of tone in the fecular fibref of the inftines, rather
than to any fault in the digestive fluids.

Thefe, and other confiderations, lead us to conclude, that
the chief part of the proximate caufe of tympanites, is a lofs
of tone in the fecular fibref of the inftines. But further,
as air of any kind accumulated in the cavity of the in-
ftines fhould, even by its own elaficity, find its way
either upwards or downwards, and fhould alfo, by the
affdence of inspiration, be entirely thrown out of the body;
fo when neither the re-afboration nor the expulfion takes
place, and the air is accumulated to al lofes of the al-
imentary canal, it is probable that the paffage of the air along
the courfe of the inftines is in fome places interrupted. This
interuption, however, can hardly be fuppofed to proceed
from any other caufe than fpasmodic conftrictions in certain
parts of the canal; and we may conclude, therefore, that
fuch conftrictions concur as part in the proximate caufe
of tympanites. Whether fuch fpasmodic conftrictions are to
be attributed to the remote caufe of the difcafe, or may be
confidered as the confequence of fome degree of atony firf
arising, cannot with certainty be determined.

Cure of Tympanites.—Having thus endeavored to af-
 certain the proximate caufe of tympanites, we proceed to
treat of its cure; which indeed has feldom fucceeded, and
almost never but in a recent cafe of the difcafe. It may be
proper, however, to flate what may be reafonably at-
tempered; what has commonly been attempted; and what
attempts have fometimes fucceeded in the cure of this
difcafe.

It must be a firft indication to evacuate the air accumu-
lated in the inftines: and for this purpofe, it is neceffary
that thofe conftrictions, which had efpecially occurred its
accumulation, and continue to interrupt its paffage along
the courfe of the inftines, fhould be removed. As thofe,
never, can hardly be removed but by exciting the perifaltic
motion in the adjoining portions of the inftines, purgatives
have been commonly employed; but it is at the fame
fime agreed, that the more gentle laxatives only ought to be em-
ploved, as the more draffic, in the overftretched and tenfe
flate of the inftines, are in danger of bringing on inflamation.
It is for this reafon, alfo, that glfyyers have been frequently
employed; and they are the more neceffary, as the feces
collected are generally found to be in a hard and dry flate.
Not only on account of this flate of the feces, but, farther,
when glfyters produce a confiderable evacuation of and
and thus knew that they have some effect in relaxing the spasm of the intestines, they ought to be repeated very frequently.

In order to take off the contractions of the intestines, and with some view also to the carminative effects of the medicines, various antispasmodics have been proposed, and commonly employed; but their effects are seldom considerable; and it is alleged that their heating and inflammatory powers have sometimes been hurtful. It is, however, always proper to join some of the milder kinds with both the purgatives and glyters that are employed; and it has been very properly advised to give always the chief of antispasmodics, that is, an opiate, after the operation of purgatives is finished.

In consideration of the overstretched and tense state of the intestines, and especially of the spasmodic contractions that prevail, fomentations and warm bathing have been proposed as a remedy; and are said to have been employed with advantage: but it has been remarked, that very warm baths have not been found so useful as tepid baths long continued.

Upon the supposition that this disease depends especially upon an atony of the alimentary canal, tonic remedies seem to be properly indicated. Accordingly, chalybeates and various bitters have been employed; and, if any tonic, the Peruvian bark might probably be useful. But as no tonic remedy is more powerful than cold applied to the surface of the body, and cold drink thrown into the stomach; so such a remedy has been thought of in this disease. Cold drink has been constantly prescribed, and cold bathing has been employed with advantage; and there have been several instances of the disease being suddenly and entirely cured by the repeated application of snow to the lower belly.

It is hardly necessary to remark, that, in the diet of typhomatous persons, all sorts of food disposed to become flatus in the stomach are to be avoided; and it is probable, that the mineral acids and neutral fats, as antizymes, may be useful.

In obitute and desperate cases of typanumites, the operation of the paracentesis (tapping) has been proposed; but it is a very hazardous remedy, and there is no satisfactory testimony of its having been practiced with success. It must be obvious, that this operation is a remedy suited especially, and almost exclusively, to the typanumites abdominalis; the existence of which, separately from the interna, is very doubtful, at least not easily ascertained, yet it is not very likely to be cured by this remedy: and how far the operation might be fatal in the typanumites interna, is not yet determined by any proper experience. There would be a danger, indeed, of converting the typanumites interna into the typanumites abdominalis, by allowing the air to escape through the puncture of the intestine into the face of the peritonaeum, and thus of converting a lees diseased into a greater, and, in fact, of producing irreparable mischief.

TYMPANO TRIBA, among the Ancients, a designation given to an effeminate person, who could do nothing but play on the tympanum.

TYMPANUM, in Anatomy. See EAR.

TYMPANUM, Diffages of. The cavity of the drum of the ear is sometimes affected with a puriform ichorous discharge, attended with a loss of hearing, proportionate to the degree of disorganization which this part of the ear has sustained. In general, on blowing the nose, air is expelled at the meatus auditorius externus: and when this is the case, it is evident that the discharge is connected with an injury, or disorganization of the membrana tympani. However, when the Eustachian tube is obstructed with mucus, or matter, or when it is rendered impervious, and permanently closed by inflammation, the membrana tympani may not be perfect, and yet, it is clear, no air can in this state be forced out of the external ear in the above manner. An examination with a blunt probe, or with the eye, while the rays of the sun fall into the passage, should therefore not be omitted. If the membrane have any aperture in it, the probe will pass into the cavity of the tympanum, and the surgeon feel that his instrument is in contact with the ossicle.

In this manner the affection may be discriminated from a herpetic ulceration of the meatus auditorius externus. The causes are various: in carcinatina maligna, the membrana tympani occasionally inflames, and floughs; all the ossicle are discharged, and, if the patient live, he continues quite deaf. An ear-ache, in other words, acute inflammation of the tympanum, is the most common occasion of suppuration in this cavity, to which, and the cells of the mastoid processes, a good deal of pus collects. At length, the membrana tympani ulcerates, and a large quantity of matter is discharged; but, as the secretion of pus still goes on, the discharge continues to ooze out of the external ear.

Instead of stimulating applications, inflammation of the tympanum demands the rigorous employment of antiphlogistic means. Unfortunately, it is a too common practice, in this case, to have recourse to acrid spiritual remedies. Above all things, the repeated application of leeches to the skin behind the external ear, and over the mastoid processes, should never be neglected. As soon as the inflammation ceases, the degree of deafness, occasioned by it, will also disappear. This, however, does not always happen.

When an abscess is situated in the cavity of the tympanum, Mr. Saunders seems to think, that the membrana tympani should not be allowed to burr by ulceration, but be opened by a small puncture. Sometimes the diseafe, of which we are treating, is more injurious in its attack: flight paroxysms of pain occur, and are relieved by flight discharges. The case goes on in this way, until, at last, a continual discharge of matter from the ear takes place. The disorder is destructive in its tendency to the faculty of hearing, and it rarely stops until it has so much disorganized the tympanum and its contents, as to occasion total deafness. Hence Mr. Saunders very properly defends the propriety of making attempts to arrest its progress,—attempts which are not free from danger; and he cenfures the foolish fear of interfering with the complaint, founded on the apprehension, that bad constitutional effects may originate from stopping the discharge.

If the case be neglected, the tympanum is very likely to become carious; before which change, the disease, says Mr. Saunders, is most commonly curable.

Mr. Saunders divides the complaint into three flages:

1. A simple puriform discharge. 2. A puriform discharge complicated with funguses and polyph. 3. A puriform discharge with caries of the tympanum. As the disease is a local one, direct applications to the parts affected are chiefly entitled to confidence. Blister and fecons may be advantageously employed in aid of topical applications. Mr. Saunders's practice, in these cases, consists in administering laxative medicines, and fomenting the ear while inflammatory symptoms last, and afterwards injecting a solution of zincum vitriolatum, or cerusca acetata.

In the second stage, when there are funguses, he removes or destroys them with forceps, afterwards touches their roots with the argentum nitram, or injects a solution of slum, zincum vitriolatum, or argentum nitram.

TYMPANUM, in Architecture. See TYPANUM.

TYMPANI, Chorda. See SYMPHONIA.

TYMPANUM, Tumus, in Medicine, is a kind of wood placed
placed round an axis, or cylindrical beam, on the top of which are two levers, or fixed Pfaves, for the more easy turning the axis about, in order to raise a weight required.

The tympanum is much the same with the peritrochium; but that the cylinder of the axis of the peritrochium is much shorter and less than the cylinder of the tympanum. See Axis in Peritrochium.

Tympanum of a machine is also used for a hollow wheel, in which one or more people, or rather animals, walk to turn it; such as that of some cranes, calenders, &c.

Tympanum, Lat. a drum, in Antiquity; but in modern Music, it is equivalent with tymbales, or a pair of kettle-drums; which see. See likewise Timpano, Ital. for a kettle-drum.

Tymphaei, in Ancient Geography, a people of Thessaly, towards the source of the Peneus. Strabo.

Tyna, a river of India, in the easterm part of the peninsula on this side of the Ganges, according to Ptolemy; marked by D'Anville to the N. of Malaparra.

Tyran, a small post-town of the county of Armagh, Ireland; 69 miles N. by W. from Dublin.

Tynacle, William, (named also Hitching) in Biography, a learned martyr to the Reformation, was born towards the latter part of the fifteenth century, on the borders of Wales, but the precise place of his nativity is not known. He received part of his education at Magdalen-Hall, Oxford, where he imbibed the doctrines of Luther, which caused his being dismissed from Wolley's new college of Christ-church, into which he had been admitted; so that he removed to Cambridge, where he took a degree. From hence he removed to Gloucestershire, to take the charge of Sir John Welch's children; and, during his residence here, he translated Erasmus's "Enchiridion Militis Christiani" into English, for the benefit of the family with which he resided, and he often preached in and about Bristol. By the company which visited Sir John, Tyndale was reproached as a heretic, and articles were preferred against him by the chancellor of the diocese, so that he was under a necessity of removing to London, where he preached at St. Dunstan's in the West. Deprived of being admitted one of bishop Tonstill's chaplains, he made application for that purpose, but was disappointed. In a retirement near London, he prepared a translation of the New Testament into English, which he accomplished, by wearied industry, in about half a year; but the times would not admit of its publication. The author therefore withdrew to the continent, and at length took up his abode at Antwerp; and here he completed his work, which was printed in 1526, 8vo., without a name. The number of copies was 1500, most of which were bought in England, and industriously circulated. The zealous papists were alarmed, and foreseeing the diffusion of error and heresy, obtained orders from Warham, archbishop of Canterbury, and Tonstill, bishop of London, that those who possessed any copies should deliver them up on pain of excommunication. Tonstill procured all that were unfold at Antwerp, and having purchased them, they were brought over and burnt at St. Paul's Crotch. This circumstance favoured Tyndale's design, who took occasion to prepare a more correct edition, which was printed in 1534; and cheaper editions increased the circulation. In order to discourage and restrain these measures for disseminating the Scriptures, Sir Thomas More ridiculed Tyndale's version in a dialogue in 1529, to which Tyndale replied: and the king, in a court of star-chamber in 1531, with the concurrence of the prelates, universities, and clergy, pronounced a severe condemnation of it, together with other heretical books. Tyndale, however, persevered with undaunted resolution, and engaged in a translation of the five books of Moses from the Hebrew. But in a voyage to Hamburg he was shipwrecked, and lost his books, papers and money. At Hamburg, where he at length arrived, he met with Miles Coverdale, and cooperating in their labour, they completed the Pentateuch, and printed it in 1530. Tyndale published a translation of the prophecy of Jonah, with a prologue, in 1534, and thus ended his labour on the Old Testament. At Antwerp he took up his residence in 1534, as a place of safety; but Henry VIII. and his council employed a person to betray him under the mask of friendship, and he was conveyed as a prisoner to Vilvorde, where he remained for a year and a half. At length, in 1536, he was brought to trial upon the emperor's decree at Augsburg; and here he was condemned, and strangled at the stake; and his body was reduced to ashes. He expired with uttering this prayer, "Lord, open the king of England's eyes!" It is needful to make any reflections on the conduct of such favage percutors, who thus treated a man of irreproachable manna, and who was pronounced, by the emperor's procurator, who affiliated in his condemnation, "Homo doctus, plus, et bonus," for no other crime besides that of enabling Christians to peruse a book which is the only authoritative directory of their faith and practice. Tyndale's other works were introductions to, and comments upon, parts of Scripture. Biog. Brit.

Tyndarides, in Mythology, a name given by the poets to Caltor and Pollux, the sons of Jupiter and Leda. Though, according to the fable, Pollux and Helena proceeded from the egg which Leda had conceived by Jupiter, and were therefore immortal; whereas, out of another egg, which the conceived by Tyndarus, her husband, came Caltor and Clytemnestra, who were mortal. See Castor and Pollux.

Tyndaris, in Ancient Geography, Pandari, a town of Asia, in the Colchide, on the right bank of the Phasis, E.N.E. of Circeum, and S.W. of Cyta (Cutatis.) Pliny.—Alfo, a town of Sicily, towards the S.W., which was a Roman colony. It is called by Ptolemy Tyndarium.

Tyndis, Panda, a port of India, upon the coast of the country denomined Lymyrca, according to the Periplus of the Erythrean sea.

Tyndus, Tanaon, a river of India, in the peninsula on this side of the Ganges. Ptolemy.

Tyne, in Geography, a river of Scotland, which rises a few miles S. of Dalkeith, crosses the county of Haddington, and runs into the German sea, N. lat. 56° 2'. W. long. 2° 38'.

Tyne. See Tine.

Tyne-mouth, a township in the east division of Castle-Ward, in the county of Northumberland, England is situated on the banks of the river Tyne, 9 miles E.N.E. from Newcastle, and 286 miles N. by W. from London. It is a place of remote antiquity; and recent discoveries have proved that the Romans had buildings here. It is chiefly noted for its ancient monastery, which is reckoned to be one of those founded by Oswulf, the first Christian king of Northumberland. Great local facility was soon attributed to it, and several kings and other illustrious persons were buried here. St. Herebalb, the companion of St. John of Beverley, was abbot here at the beginning of the eighth century; but before the end of it, the monastery was plundered by the Danes, as it was again in the next century by the forces under Hunguar and Hubba, and a third time in the reign of King Athelstan. The old church seems to have lain desolate for a century, till a short time before the Norman conquest, when Tolfi, earl of Northumberland, rebuilt and
and endowed it. On the banishment of Tolotti, the Conqueror gave his possessions to Robert de Mowbray, who then became earl; he refounded Tynemouth priory, and filled it with Black monks from St. Alban's, to which abbey the priory was subordinate. In his conspiracy against William Rufus, he converted the place into a fortress, which, after a siege of two months, was taken by storm. The priory progressively increased in consequence. In 1244, the prior mediated a peace between England and Scotland; and soon after obtained a charter from Henry III. to hold a market in his manor of Bacterial. He also claimed a market for Tynemouth; but in a suit on that account, judgment was given against him. Many privileges and immunities were, however, obtained for the inhabitants. At the surrender of the priory, in 1539, its possessions were very large, having twenty-seven villages with their royalties, besides the improvisations of many churches; its annual income being estimated at 70s. 12d. The chief remains are those of the church, at the east end of which is a neat little chapel or oratory. Till 1569 the church was parochial, but being decayed and damaged during the civil war, another was erected, and completed in 1668; but the old cemetery is still much used in preference to the new one. The castle, erected by earl Mowbray, appears to have been a place of great strength. It was garrisoned in the reign of queen Elizabeth; and again in that of Charles I., when it was besieged and taken by the parliamentary forces. Little remains of this ancient fortress except a strong gateway, the approach to which has been recently flanked with bastions. The village of Tynemouth is much frequented in the bathing season, and commodious and warm and cold baths have been erected. Here are some considerate fall-works; and it is estimated that 700,000 chaldivons of coal are annually sent hence to London. In the population return of the year 1811, the number of houses in this township is stated to be 950; and of inhabitants, 5834.—Beauties of England, vol. xii. Northumberland, by the Rev. R. Hodgson.

TYNIDRUM, or Tsuurodomun Colonia, Hydraclub, in Ancient Geography, a town of Africa, mentioned by Ptolemy, and placed by him two degrees W. of Sicca Veneria.

TYNIEZC, or Tynez, in Geography, a town of Austrian Poland, on the Vitula; 4 miles S.W. of Cracow.

TYNNA, in Ancient Geography, a town of Afia, in the Lefier Armenia, and in the prefecture named Catziona. Ptol.—Allo, a river of India, on this side of the Ganges, the mouth of which was in the country of the Avari. Ptolemy.

TYNSBOROUGH, in Geography, a town of Maffachusetts, in the county of Middlesex, containing 704 inhabitants; 31 miles N. of Boston.

TYONISTA, a river of Pennsylvania, which runs into the Alleghany, N. lat. 41° 29'. W. long. 78° 30'.

TYORA, in Ancient Geography, commenced "Matienus," a town of the Aborigines, on the coast of Latium; distinguished by a very ancient oracle of Mars.

TYPA, in Geography, a harbour on the coast of China, at the entrance of the river of Canton, formed by several islands. The anchoring place is N. lat. 22° 9'. E. long. 113° 48'.

TYPEA MONE, in Ancient Geography, a small mountain of Triphylia, near the banks of the river Alpheus. It was a law of the Eleusins, that any female who was surprised in attendance at the Olympic games, should be precipitated from this mountain, the reason of which law is said to have been, that the Athletes were naked in their exercises.

TyTE, Tyte, formed from nova, form, figure, a copy, image or resemblance, of some model.

The term type is left in use than its compounds prototype and archetype, which are the originals that are made without models.

Type is also a scholastic term, much used among divines, signifying a symbol, sign, or figure, of something to come. In this sense the word is commonly used with relation to antitype, antitypion, which is the thing itself, of which the other is a type or figure.

Thus Abraham's sacrifice, the paschal lamb, &c. were types or figures of our redemption; and the brazen serpent was a type of the crofs, &c.

Types are not mere conformities, or analogies, which the nature of things holds forth between them; nor arbitrary images arising merely from the casual resemblance of things; but there is farther required a particular institution of God to make a type, and a particular declaration of his that it is so.

Gale divides types into historial and prophetical. The first are those used by the ancient prophets in their agitations and visions: the second, those in which things done, or ceremonies instituted in the Old Testament, prefigure Christ, or things relating to him in the New Testament. Or, they are things which happened and were done in ancient time, and are recorded in the Old Testament, and which are found afterwards to describe or represent something which befell our Lord, and which relates to him and his gospel. E. gr. Under the law, a lamb was offered for a sin-offering, and thus an atonement was made for transgressions. John the Baptist calls Christ "the lamb of God that taketh away the sins of the world," and St. Peter tells Christians that they are redeemed "by the blood of Christ, as of a lamb." Hence we infer and conclude that the lamb was a type of Christ; and upon considering it, we find that it has all that can be required to constitute a type; for it is in many respects a very just and lively representation of Christ. The lamb died for no offence of his own, but for the sins of others; so did Christ: the lamb could not commit sin by his nature, nor Christ by his perfection: the lamb was without bodily spot or blemish: Christ was holy and undefiled: a lamb is meek and patient: such was the afflicted and much injured Son of God.

These types are useful to persons who have already received Christianity upon other and stronger evidence, as they shew the beautiful harmony and correspondence between the Old and New Testament; but they seem not proper proofs to satisfy and convince doubters, who will lay perhaps, with the schoolmen, "theologia symbolorum non efi argumentativa."

Unless we have the authority of the Scriptures of the New Testament for it, we cannot conclude with certainty that this or that person, or this or that thing mentioned in the Old Testament is a type of Christ, on account of the resemblance which we may perceive between them: but we may admit it as probable.

The ancient fathers, as well as the modern critics, have been greatly divided about the nature and use of the types and typical representations in the Old Testament; and it is this makes one of the great difficulties in understanding the ancient prophecies, and in reconciling the New and Old Testament together.

There is no denying but that there were some types which the divine wisdom instituted to be the shadows and figures of things to come; and yet people run into an excess that way: some looking for types in every thing, like Origen, who deciphered myriads in the very cauldrons of the tabernacle. A prudent man should be contented with the more sensible and obvious ones, nor propose any without
without proving them as much as possible, and shewing that
they were really intended for types, in order to justify the
fidelity of the reasoning of the apostles, who argued from
them.

An author, in reference to this subject, maintains, that
not the fathers only, but St. Paul himself, was of the op-
inion, "that Christianity was all contained in the Old Te-
ftament, and was implied in the Jewish history and law; both
which are to be reputed types and shadows of Christiannity."
In order to which, he quotes Hebrews, vii. 5. x. 1. and
Colof. ii. 16. 17. He adds, "that the ritual laws of
Mofes, being in their own nature no other than types and
shadows of future good things, are to be considered as hav-
ing the effect of prophecies." This is likewise the sense of
Mr. Whilton, and others; but the same author even quotes
our Saviour speaking in behalf of this typical reasoning in
that passage, Matth. xi. 13. where he affirms that, "the
law prophesies; and that he came to fulfil the law as well
as the gospel." (Matth. v. 17. Diff. of the Grounds, &c.)
An ingenious divine takes this occasion to observe, that
had the ancients, with the modern retainers to the typical
way, expressly designed to have exposed Christiannity, they
could not have done it more effectually than by thus making
everything types and prophecies.

Not that he denies the reality of such things as types. It
is manifest there were many under the Old Testament: such
were Zechariah's flames, beauty, and bands, ch. xi. 7. ro.
14; such was Hophia's adulterous wife, chap. i. 23; and such
were his children, ver. 4. 6. The prophets designed by
these to prefigure future events; but in these instances the
reader is at once, by the declaration of the prophet, made
to understand as much, and not left to his own conjectures
about them after the events are over.

In effect, all that is urged from Scripture for the typical
or allegorical interpretations of the Jewish law, history,
ceremonies, &c. it is affected, may be set aside, without any
violence to the Sacred Text, which may be explained on
more natural and intelligible principles, and more consis-
tently with grammar.

The word τύπος, we have observed, literally denotes no
more than a copy or impreffion of any thing; and accord-
ingly, in our translation, we find it sometimes rendered by
print, sometimes by figure, sometimes by fcripture, and some-
times by form.

Hence also the word is figuratively applied to denote a
moral pattern; in which sense it signifies no more than ex-
ample and similitude.

Again, the word ἑκτύπος, antitype, in Scripture, signifies
anything formed according to a model or pattern; and thus,
in the Epifile to the Hebrews, the tabernacle, and
holy of holies, being made according to the pattern shewn
to Mofes, are said to be antitypes, or figures, of the true
holy places. In the like sense, St. Peter, speaking of the
flood and the ark, by which eight perfons were faved, calls
baptifm an antitype to them; by which he expreffes no more
than a similitude of circumftances.

The other words used in Scripture to imply a future
event, prefigured by fome foregoing act, are,—ἐκτύπωμι, rendered by imitation and example; and ἱμάριστο, shadow.

Such being the import of all the terms used in the New
Teftament writers, seeming to imply any prefiguration of
future events under the Gospel, it is observed,

1. That to argue from types, is only to argue from ex-
amples or similitudes; and, consequently. that all inferences
drawn from fuch reafonings are no farther conclufive than
reafonings from similitudes are. The intent of similitudes is
only to help to convey some ideas more clearly or strongly;

so that to deduce confequences from a simile, or infer any
thing from other parts of the simile, than what are plainly
similar, is absurd.

The fame author also alleges, 2. That it cannot be
proved, that the ceremonies of the Mofic law were ever
designed to prefigure any future events in the state of the
Mefiah's kingdom. No fuch declared prefigurations are
mentioned in the writings of the Old Testament, whatever
notions prevailed among the writers who immediately fol-
lowed. It is granted, that the apostles argued from the
rites in the Mofic institution; but this (he fays) appears to
have only been by way of illustration and analogy.

There is certainly a general likenefs in all the difpen-
sations of Providence; an analogy of things in the natural
as well as the moral world, from which it is easy arguing by
way of parity, and it is very jufl and ufual fo to do; but that
one of these difpenfations was therefore given to prefigny
another that was future, can never be proved, unless it be
expressly declared.

It is in the fame way of fimilitude (he maintains) we are to
underland St. Paul, where he fays, "that Chrift our fad-
over is facrificed for us." And thus we are to understand
John the Baptist, when he calls our Saviour the "Lamb
of God." There was this fimilitude of circumstance, that
Chrift was slain on the fame day with the paflch lamb;
that he died about the fame time of the day when the proles
began their hillel; that not a bone of the one or the other
was broken. Add, that as the paflch lamb was without
blemith, fo was Chrift without fin. From thefe, and other
circumftances, the apostle applied the term πασχαλιον to
Chrift.

Thus, also, we are to account for what St. Paul calls the
baptifm of the children of Ifrael in the cloud, and in the
fea; and for the comparifon betwixt the high-priest entering
the holy place every year, and Chrift entering into heaven.

Sykes's Exfay on the Truth of the Christian religion, 1725.

Τύπος, τύπος, is also a name given to an edict of the em-
peror Conftans II. publifhed in 648, to impose a general
filine both on the orthodox and the Monothelites.

It had the name of type, as being a kind of formulary of
faith; or rather a form on which men were to regulate their
conduct.

The type owed its original to Paul, patriarch of Con-
ftantinople, who perfaudied that emperor to take away the
efthefs, compiled and hung up in all the public places by
Heraclefs, as occupying great complaints from the ortho-
dox, by its favouring the Monothelites; and to publifh an
edict to impose silence on both parties.

But fuch kinds of pacifications are held inexcufable in
matters of religion; accordingly pope Theodore fon
procured the patriarch Paul to be depofed; the type was ex-
mained in the council of Rome, conffituting of a hundred
and five bishops, in 649, and condemned; and an anathema
was pronounced againft all fuch as admitted either the impious
efthefs or τύπος.

Τύπος, TYPUS, is also ufed to denote the order obferved
in the intimation and reemifion of fevers, pulfes, &c.

Τύπος, among Letter-founders and Printers, denotes the
fame with letter. See FOUNDERY.

TYPHA, in Botany, Cat's-tail, or Reed-mace, τύπος of
the ancient Greeks, from τύπος, a beg or sarfes, of which fpecies
the plants of this genus are among the moft confficious in-
habitants. They are often vulgarly mitkaken for the Bull-
rub, a very different plant. (See Sirchius, fef. 2.)—
Brown
Towards the base of each is a dense, or channelled, on the upper. There is always a naked space between the male and female catkin. The roughness of the male flower is rather chaffy than hairy, and seems to take place of the perianth. The fruit-bearing catkin sometimes splits longitudinally, in growing, into four dismembered portions.

The original Linnean names have been retained in Fl. Brit. and by the English botanists in preference to Curtis's major and minor, which latter might have led only to confusion.

3. T. minor. Dwarf Catkin-tails, or Reed-mace. Fl. Brit. n. 3. Engl. Bot. t. 1457. Willd. n. 2. Ait. n. 2. "Bauh. Hift. v. 2. 540. Lob. 1c. 81. (T. angustifolia s; Linn. Sp. Pl. 1378. Hudf. 400. T. minima; Willd. n. 4. T. palustris minima, duplici clav; Morif. fect. s. t. 13. f. 3. )—Leaves linear; convex at the back. Catkins a little distant; the male leafy; female short and turgid. Native of marshy, rather sandy, places, in England, Switzerland, and Germany, flowering in July or August. The root is perennial and creeping, and the habit of the plant like the two foregoing species, but its size much smaller than either, the stem being only twelve or eighteen inches high, and very slender, sheathed with broad scales about half its length, which have been mistaken for leaves. The real leaves springing, as described by the English Botanists, from a different parcel of similar scales, and are all the same, scarcely a line in breadth, slightly channelled, convex at the back. Catkins each about an inch long, a little distant from each other; the male with a leafy scale or two at its base, middle, or fummit; the female somewhat elliptical, timid, often divided. Anthers mostly solitary. Flowers not much interfered with hairs or chaffy scales. There can be no doubt, from Wildenow's description, of his T. minima being the same plant as minor, of which latter he was not conscious of having seen a specimen.—T. minor was found on Hounslow Heath in the time of Dillenius. We have not heard of it from any recent collector.

The second of Jussieu's classes is formed of monocotyledonous plants, whose flowers are infertile below the germs. Their calyx is either of one or more leaves, or wanting. Corolla (in Jussieu's opinion) none. Stamens inferior, mostly definite in number. Germin superior, simple; style either one or more, or wanting; stigma simple or divided. Seeds solitary, naked or covered; or the fruit is of one cell, with one or many seeds. Leaves mostly alternate and fleathing. Flowers sometimes distinct in sex, by the failure of one or other of their organs of impregnation.—The orders are four; Aroides, Typhes, Cyperoides, and Gramineae; for the two last, see CALAMARIAE and GRAMINA. The Aroides consist of Ambrosia, Zofe, Arum, Cala, Dracouon, Pothos, Huottymnia, Orontium, and Acon. The Typhes are thus characterized. Flowers monocious; the male aggregate, triandrous, with a three-leaved calyx; the female aggregate, with a three-leaved (rather, we would say, many-leaved) calyx; germin superior; style simple; seed solitary. Leaves all alternate and fleathing. Plants herbaceous and aquatic.

Mr. R. Brown makes the Typha of Jussieu but a section of his Aroides. He observes that their seeds are pendulous; those of Sparganium each in a dry drupa, those of Typha in that kind of membranous close capsula termed by Garttner uriculae.
TYPHUS, a name used by some authors for colt's-foot.

TYPHIUM, in Ancient Geography, a mountain of Greece, in Beroia.

TYPHLE, or TYPHLINE, a name by which some authors have called the fish more usually known by the name of the 

TYPHILUS, in Zoology, the name by which the Greeks, and from some other authors, have called the eel, or flow-worm.

TYPHLITUS, TYPHOMANIA, from τυφλος, blind; blindness.

TYPHODES, in Medicine. See Typhus.

TYPHONIS, TYPHCEUS, TYPHUS, TYPHOMANIA, probably from τυφλος, smoke, and μανία, frenzy; but the propriety of which is not very obvious, a term used by the older writers in medicine to denote a state of diseased in which lethargy was combined with delirium, or, as some have rated, an apparent sopor with actual watchful-ness: whence the appellation has been derived synonymous with coma vigil. A more accurate pathology has discriminated these vague distinctions; for every degree of morbid from melancholy, from lethargy up to complete apoplexy, appears to be the same in kind, differing only in degree.

See APOLLEXY, COMA, and LETHARGY.

TYPHON, or Typhæus, in Mythology, the name of one of the rebel giants.

The fable of Typhon is one of the most mysterious among the ancient mythologists. The Greeks and Latins, depending upon traditions received from the Egyptians, describe him as a horrid monster, produced, as they say, from the Earth by the jealous Juno, in order to avenge herself on Latona, her rival. Heidet says, that this giant was the son of Tartarus and Terra. Manilus expresses himself to this purpose:—

"Merito Typhonis habentur
Horrende fedes, quem Tellus seva profudit,
Cum bellum Carlo peperit."

Apollodorus makes Typhon the most terrible of all monsters; describing him as having a hundred heads, and as issuing from his hundred mouths devouring flames, and howlings so dreadful, that he equally terrified gods and men. His body, whose upper part was covered with feathers, and the extremity entwined with serpents, was so vast, that he touched the skies with his head. His wife, says this author, was Echidna, and his offspring were the Gorgon, Geryon, Cerberus, the Hydra of Lerna, the Sphinx, and the Eagle which preyed upon the unfortunate Prometheus; in a word, all the monsters that were hatched in the country of fables. Hyginus adds, that Typhon no sooner sprung from the earth, than he resolved to declare war against the gods, and to revenge the overthrow of the giants. A contest took place between Typhon and Jupiter, which, after various dreadful conflicts, terminated in the defeat of Typhon, who, being pursued by Jupiter and affaided with thunderbolts, was at last driven into Sicily, and there buried under mount Etna. The conjectures of modern authors in their attempts for explaining this fable have been very various. Some, among whom is G. Voilès, are of opinion that Typhon was the same with Os, king of Babylon. Bochart supposes that he was the same with Enceladus. Some authors think that Typhon was king of Sicily, and others that he was the same as Eliau. Heurt apprehends that Typhon was the legistrator of the Hebrews, becoming extremely odious to the Egyptians by the destruction of their first-born. Banier supposes, that Typhon and his brother Ofiris were much more ancient than Moses; and that the idolatrous worship of the oxen Apis and Minevis, consecrated to Ofiris, was spread through Egypt before the Israelites entered there, since it was upon this model, according to Selden, that Aaron made the golden calf which the Jews worshipped in the wilderness. A dispute arose between Typhon and Ofiris, and he was drowned, as it is said, on the authority of Herodotus, in the marshes of the lake Serbonis, or killed in a battle fought with his nephew Orus, whence the Egyptian priests made the people believe, that the gods interred themselves in avenging Ofiris, by destroying his persecutor with a thunder-bolt. Thus, however, perished the cruel tyrant of Egypt, and the kingdom was left to young Orus, under the regency of his mother Isis. For further particulars we refer to Banier's Mythology, vol. i.

TYPHUS, or Typhus, in Physics. See WHIRLWIND.

TYPHONIS INSULA, in Ancient Geography, an island of the Mediterranean sea, upon the coast of the Troade.

TYPHUS, or Typhæus, in Mythology, a term used by Hippocrates to denote a fever of an inflammatory character, probably derived from τυφλος, I inflame. The disease, however, not having been very distinctly described by that writer, other authors have applied the term to fevers of a nervous character, and it is now received as the appellation of ordinary low fever, and flanks in opposition to inflammatory fever. In short, by the word typhus, we now understand the common contagious fever of this and other northern climates, which has received various appellations, according to the situations in which it has prevailed, or to some of its symptoms, or to the degree of its severity; such as hospital, gal, and ship fever; petechial, spotted, or purple fever; putrid, malignant, infectious fever; continued fever, &c. This common fever, or typhus, differs essentially from the eruptive fevers, small-pox, measles, chicken-pox, and scarlet fever, which affect any individual but once during life; it differs from the plague of the East, which is accompanied with huboes, and from the yellow fever, the bilious remittent fever of hot climates; and from the remittent and intermittent fevers, the effect of marsh effluvia, in more northern latitudes; but, under all the circumstances, is the same, and described exactly. It appears to be of the fame nature, and is usually understood by physicians in Europe, when they speak of fever simply. As we have entered at great length into the nature of this disease, and the doctrines of pathologists respecting it, under its proper head, it would be superfluous to enter more largely into the subject here. See FEVER.

TYPIC FEVERS, an appellation given by medical writers to those fevers which are regular in their attacks, and in their general period: they are thus called by way of distinction from the erratic, which observe no regular type, or determinate appearance.

TYPOGRAPHY, formed from τυπος, and γραφειν, writing, the art of printing.

TYPOLITEIS, or TYPOLITHUS, formed of τυπος, type, and λίθος, stone, in Natural History, names given to stones or fossils, on which are imprinted the figures of various animals and vegetables. See STONES, ADVENTITIOUS FOSSILS, &c.

TYR, in the Ethiopian Calendar, the name of the fifth month of the Ethiopian year. It commences on the 25th of December of the Julian year.

Tyr, in Mythology, a name given to a warrior deity, the protector of champions and brave men, invoked by the ancient northern nations.

The third day of the week was consecrated to Tyr, from whom, it is said, the name given to it in most of the northern languages is derived: it is called in Dan. Tydflag, or Tisdag; in Sued. Tisdag; in English, Tuesday; in Low Dutch, Dingdag; and in Latin, Dies Martis: whence it is inferred, that Tyr answered to Mars. The
TYR

The Germans, in High Dutch, call this day Erts-bag, from the word birti or bare, a warrior, which comes to the same thing.

Tyr must be distinguished from another deity called Thor Mallet's North. Ant. vol. i. p. 99.

TYRA, in Ancient Geography, a town of European Sar-matia, upon the banks of the river Thyras; sometimes called Ophiuia.

TYRA, in Geography, a river of Germany, which runs into the Kelm, one mile W. of Kelbra, in the county of Schwartzburg.

TYRAMBE, in Ancient Geography, a town of Afian Sar-matia, 660 fladis from the river Khombites, according to Strabo; but Ptolemy places it between Azabites Mitra and the mouth of the river Atticurus.

TYRAN, or Tyron, in Geography, a small island in the Red sea. N. lat. 27° 40'. E. long. 34° 29'.

TYRANNICIDE, formed of tyrannus and casco, I kill, denotes the act of killing a tyrant.

TYRANNIO, in Biography, a Greek grammarian, was a native of Amià, in Pontus, and a disciple of Dionylus of Thrace at Rhodes. Upon the conquest of the kingdom of Mithridates by Lucullus in the year B. C. 70, Tyrannio became a captive, but was liberated by Murena, and taken to Rome, where he opened a school, in which he gave instruction to the son and nephew of Cicero, and also to Strabo. In this situation he acquired considerable wealth, and accumulated a library of more than 30,000 volumes. Among other valuable works which he possessed, he preferred the writings of Aritotle and Theophratus, which he obtained from the librarian of Sylla, and which he afterwards imparted to Asdrubius of Rhodes. Tyrannio lived to an advanced age; but none of his works are extant.

Bayle.

TYRANNUS, in Ornithology, a name given by some to the lanius, or butcher-bird, a species of hawk not larger than a thrush, but a very fierce and fatal enemy to the small birds. See Lanius.

TYRANNY, in Political Government, is the exercise of power beyond right, to which nobody can have a right; and thus it is distinguished from Ufurfation, (which fee,) or the exercise of power which another hath a right to: and it is the use of power which any one possesses, not for the good of those who are subject to it, but for his own private separate advantage; when the governor, however, intituled, makes not the law, but his will the rule; and his command and actions are not directed to the preservation of the property of his people, but the satisfaction of his own ambition, revenge, covetousness, or any other irregular passion.

It is a mistake to think this fault peculiar to monarchies; other forms of government are liable to it as well as that. For wherever the power that is put in any hands for the government of the people, and the preservation of their property, is applied to other ends, and made use of to improve, harass, or seduce them to the arbitrary irregular commands of those that have it, there it becomes tyranny, whether those who thus use it are one or many.

Accordingly we read of the thirty tyrants at Athens, as well as one at Syracuse; and the intolerable dominion of the deccmvi at Rome was nothing better. Every wanton and capricious restraint of the will of the subject, whether practised by a monarch, a nobility, or popular assembly, is a degree of tyranny.

Whenever the constitution of a state vests in any man, or body of men, a power of destroying at pleasure, without the direction of laws, the lives or members of the subject, or of alienating their property, or of depriving them of their liberty at pleasure, such constitution is tyrannical. In a word, wherever law ends, tyranny begins, if the law be transgressed to another's harm. And whoever in authority exceeds the power given him by the law, and makes use of the force he has under his command, to compacts that upon the subject which the law allows not, ceases in that to be a magistrate, and, acting without authority, may be opposed as any other man, who by force invades the right of another. The end of government, whatever be its name or nature, is the good of mankind; and upon this principle, whoever uses force without right, as every one does in society who does it without law, puts himself into a state of war with those against whom he uses it; and in that state all former ties are cancelled, all other rights cease, and every one has a right to defend himself, and to refit the aggressor.

If it be asked who shall be judge; whether the prince or legislative act contrary to their trust? The answer is obvious, the people shall be judge; for who shall be judge whether the trustee or deputy acts well, and according to the trust repdced in him, but he who deputes him, and multi, by having deputed him, has filled a power to discard him when he fails in his trust? If this be reaonsable in particular cases of private men, why should it be otherwise in that of the greatest moment, where the welfare of millions is concerned; and also where the evil, if not prevented, is greater, and the redrefs very difficult, dear, and dangerous? Locke, of Civil Government, ch. xviii. and xix. in his Works, vol. ii. p. 214, &c.

TYRANT, Tyrannus, among the Ancients, denoted simply a king or monarch.

But the ill use several perfons invested with that character made of it, has altered the import of the word, and tyrant now carries with it the idea of an unjust and cruel prince, who invades the people's liberty, and rules in a more defpotic manner than the laws of nature, or the country, do allow.

The term tyrant, we are told, became odious among the Greeks, those zealous lovers of liberty, almost as soon as introduced; but Donatus affures us, it was never taken so among the Romans till the latter ages of that empire.

The motto of a tyrant in Oderim dum metuunt. Rowland contends, that this word, as well as the correspondent Greek and Latin, is derived from tir, Welh and Efe, land, and rhanner, Welsh, to flare; q. d. tirbannon, a sharer or divider of land among his vassals. Johnfon.

TYRANTS, Thirty, an appellation under which the thirty perfons, establiished by the Lacedaemonians in Athens, in order to enlave and keep it in slavery, are denominated. Thrafbulus formed the generous design of driving them from Athens, and succeeded; upon which event Cornelius Nepos has remarked, that many have desired, and few had the happiness to rescue their country from a single tyrant: but Thrafbulus delivered his from thirty.

One of the means which these tyrants used for carrying on their scheme of enslaving the Athenians, was the ordering of the suffrages of the Areopagites to be public, that they might manage them as they pleased. See Montefquieu's Spirit of Laws, vol. i. p. 17.

TYRAS, in Ancient Geography. See Dixistr.

TYRAWLEY's Point, in Geography, the south-west extremity of Trevannon's island, in the South Pacific ocean. S. lat. 16° 48'. E. long. 163° 41'.

TYRBE, a Festival in Antiquity, a festival celebrated by the ancients in honour of Bacchus.

TYRE, in Ancient Geography, a city of Phoenicia, distant 23 miles from Sidon, its rival, according to the Itinerary of Antoninus. (See Sidon.) This city was anciently denominated
TYRE.

Ith and under but as and

Thefe other old mole, grapher, Pliny's in

Oftus, Whetther directly thrown at

Tyrus, including Pale-tyrus, was 19,000 paces in circum-

ference, whence it is plain, that Tyre on the ifland, and

Old Tyre on the main, were considered as but one city, after

the ifthmus was thrown up between them; and poihly they

might have had buildings contiguous to each other. If

Pliny's numbers are right, the old city must have been by

much the moft extensive part of the whole, and especially

as the place appears at this day. According to Pliny, the

ifland was but 700 paces from the continent; whereas Strabo

fays that it was 30 ifadia, or somewhat more than three of

our miles from Pale-tyrus; and according to the fame ge-

ograph, Tyre was wholly an ifland, like Aradus, excepting

the artificial ifthmus, which formed it into a peninsula. The

city by itfelf, according to the iftement of Pliny, meafured

only twenty-two farilongs, or not quite three of our miles, and

this is too great an allowance, if we may rely on our

modern accounts; which reprefe Tyre itfelf as a ifmall city

in extent, though it covered the whole ifland; and the fea-

ifaces of the space on which it iflood, induced the inhabitants

to rafe their buildings fo high, which plan they would have

otherwise avoided, from fear of earthquakes, that threatened

them with deftuction. At preuent the ifland appears to

have been, in its natural ifate, of a circular form, hardly con-

taining forty acres of ground; and the foundations of the

wall which surrounded it are still to be feen at the utmost

margin of the land. If it be true then, that the whole cir-

cuit of the old and new Tyre amounted to 19,000 paces, or

19 Roman miles, and that they were dilant from each other

but 33 ifadia, or 3 of the fame miles, it is evident that the

old city flood upon a much greater space of ground than the

new. A coniderable part of the ifland was, what we call

made ground. The buildings were in general spacious and

magnificent; and above the refi appeared the temples

built by Hiram to Jupiter, Hercules, and Aifarte. The

walls of Tyre were 150 feet high, proportionally broad, and

firmly built of large blocks of ifone, bound together with

white peftler. For its preuent reduced and ruinous ifate,

see Sur.

Heredotus afcribes to Tyre fitated on the ifland a very

ancient epocha; and its priets, according to his account,

reprefe that their temple, which was of greater anti-
quity than the city, fublifted about 450 years before the

Christian era. Jofephus refers the foundation of this city
to 1255 years B.C., whilst the ifraelites were under the
government of judges. But these dates cannot be applied

to infular Tyre, which was more modern than that of con-
tinental Tyre, which is laid to have been built and known

before the ifraelites took posfession of Cannan. (See Jof.

xix. 25.) The Sidonians, with a view of extending their com-

merce, fent out a colony to ancient Tyre, which contributed

very much to its augmentation; and hence it became pow-

erful, eclipsed the metropolis, and became itfelf the metro-

polis of feveral cities, which it furnished with colonies. The

Tyrians were not known in the time of the Trojan war,

according to Strabo (lib. xxi.) and Homer, who often speaks

of the Phcenicians, mentions only the Sidonians, under

which general appellation the Tyrians were probably com-

preended.

Jofephus and Theophilus Antiochenus begin the fucce-

fion of kings of Tyre with Abibal, upon the authority of

Menander the Ephefian, and Dius a Phcenian, authors of

credit. Abibal was contemporary with David, and his reign

is referred to 1056 B.C. He was fucceeded by his fon,

Hiram (1046 B.C.), who maintained an intimate friend-

ship with David and Solomon: under this prince the king-

dom of Tyre was very proflorous and flourishing; the city

was enlarged, and by means of a dam, joined to the temple

of the Olympian Jupiter, ifanding in an ifland. He also

built two temples, one to Hercules and another to Aifarte,

enriching them with donations. Besides erecting a flature

to Hercules, he repaired the temples of other gods, and

dedow them to a very great value. Tatian relates, on the

authority of three Phcenician hiiftorians, that he gave his

daughter in marriage to king Solomon, who, by her influ-

ence, was induced to worship Aifarte, the goddess of the

Sidonians. Hiram, having lived fifty-three years, and reigned

thirty-four, was fucceeded by his fon, and a feries of other

princes, until Nebuchadnezzar, king of Babylon, laid fiege

to the city, in the reign of Ithobal II. 583 years B.C.

This fiege lafted thirteen years (see Ezekiel, xxvi. 8, &c.);

and at laft it was taken by Nebuchadnezzar and utterly

destroyed. Some Phcenician hiiftorians have faid, that Itho-

bal was fucceeded by Baal; nor is it improbable, that the

inhabitants of Tyre, during the fiege, retreated with their

effects to an ifland about half a mile dilant from the shore,

where they built for themfelves a new city; which, after the

deftuction of the old town, submitted to Nebuchadnezzar,

who appointed Bafl to be his viceroy; and that, upon Baal's

death, in order to render the government more dependent

on the Afyrians, he changed the royal dignity into that of

temporary magiftrates, called fuffetes, or judges, 562 years

B.C. After Tyre had been thus governed for some years,

the royal dignity was reftored, and Balat or created king,

556 B.C. Both he and his fucceffors were dependent on,

and tributary to the Afyrians for seventy years; at the

expiration of which they recovered, according to the pro-

phesy of Ifaiah (ch. xxi. 15, 17), their ancient liberty.

In the year 480 B.C., under the reign of Marten, the Ty-

rians, as well as the other Phcenicians, were tributaries to the

Perfians, though they had a king of their own, being fa-

voured by the Perfian monarchs on account of the services

which they rendered to them in their naval expediitions.

About this time reigned Strato, whose afceffion to the throne,

in confequence of an infermifion of the flaves, is particularly

related by Juftin, lib. xviii. cap. 3. He was fucceeded by his

fucceffors, among whom was Azelmie, in whose reign

happened the memorable fiege and reduction of Tyre by

Alexander the Great. This fiege commenced about the

year 333 B.C. which was rigorously carried on and as

obfimately refilled by the Tyrians. At length Alexander,

having battered down the walls, took the city by fire,

322 B.C., after seven months fiege, and fully executed the

sentence which the Tyrians had, by their pride and other

vice,
vices, drawn down upon themselves and their country. The city was burnt down to the ground, and the inhabitants, (tho' whom the Sidonians secretly conveyed away in their ships excepted,) either defrosted or enslaved by the conqueror, who, upon his first entering the city, put 8000 to the sword, caused 2000 of those whom he took prisoners to be crucified, and fold the reed, to the number of 30,000, says Arian, for slaves. His cruelty towards the 2000 that were crucified was highly unbecoming the character of a generous conqueror, and reflects eternal disgrace upon his fame.

After the city was reduced, king Azelmic took sanctuary in the temple of Hercules, and was not only spared by the conqueror, but reforted to the throne, after Alexander had repeopled the place; for having cleared it of its former inhabitants, he planted it anew with colonies drawn from the neighbouring parts; and thenceforth styled himself the founder of Tyre, a city which he had most ungenerously destroyed. From hence, having unchained Apollo, whose statue the Tyrians had fastened, during the siege, with golden chains, to the altar of Hercules, returning him thanks for his intention of coming over to the Macedonians, and offered sacrifice to Hercules, Alexander continued his march into Egypt. This city afterwards regained a considerable degree of power; for in the year 313 B.C. it sustained a siege against Antigonus of fifteen months, before it was compelled to capitulate. It afterwards belonged to several masters, until Antiochus the Great, who took possession of it in the year 218 B.C. It afterwards became subject to the Seleucidae. Cassius, a Roman governor, sold it to Marion, whose wealth enabled him to purchase the principality. Tyre, formerly called Tazor (Josh. xix. 29.), renowned for its trade and the numerous colonies which it transplanted into several parts of the world, and the wars in which its inhabitants valiantly engaged, was in all its glory when Alexander took it, about 300 years after its capture by Nebuchadnezzar. Tyre was still in great repute in the time of our Saviour. (See Matt. xi. 21. xv. 21. Mark, iii. 8. Luke, vi. 17.) It made a considerable figure in the reign of Herod Agrippa, who defigured to wage war against it, if it had not secured peace by its deputies. (Acts, xiii. 20.) When the apostle Paul travelled through this place, it had some Christian inhabitants. (Acts, xxxi. 4.) In the second century it was a bishop's see; and St. Jerome tells us, that in his time it was the most famous and most beautiful city of Phœnicia, and a mart for all the nations of the world. This ancient father alleges this circumstance as an objection to the accomplishment of Ezekiel's prophecy (ch. xxvi. 14.), and replies to it, that the prophet's declaration is to be understood as intimating, that Tyre should no longer be the queen of nations, and enjoy the fame authority and dominion as it possessed under Hiram, and its other kings, but should be subject to the Chaldaans, Macedonians, Ptolemies, and at last to the Romans. Others have suppos'd, that the prophet does not speak of the ruin of Tyre by Nebuchadnezzar, and Alexander the Great, but of its final destruction, of which the other events were forerunners. And indeed Tyre, as we have said, is now only a poor village, inhabited by fishermen (see Str.) so that the prophecy is fulfilled, which declared, "that it should be a place for fishermen to dry their nets on." Ezekiel may also be explained by the prophet Ifaiah (xxiii. 15.), who limits the destruction of Jerusalem to 70 years. But the prophecy of Ezekiel may be more satisfactorily explained, with Mr. Marham, Le Clerc, and other learned authors, who interpret it concerning Old Tyre, i.e. Palæ-tyrus, which flood a little lower on the continent, and the best materials of which were used by Alexander the Great, in making the bithynus which now joins Tyre to the continent. (See Q. Curtius, l. iv. c. 2.) This Tyre was destroyed by Nebuchadnezzar, and never rebuilt. The inhabitants, finding themselves upon the brink of destruction, removed, as we have already said, with their wives and children, and most valuable goods, to the island of Tyre, where they built a city of the name; fo that Nebuchadnezzar, according to the prophecy (Ezek. xxix. 18.), was no gainer by his expedition. The Jews at Tyre, as Josephus informs us, suffered much from the Tyrians. This city was formerly the metropolitan see of the province of Phœnicia. Tyre was transferred to the Arabsians, with the rest of Syria; and before it was reduced to its present miserable state, it was twice besieged by the Christians in the time of the Crusades, viz. in 1112, and again in 1124. It was unsuccessfully attacked by Saladin in 1192; but in 1261, Kabil, sultan of the Mamélukes, obtained it by capitulation, and razed its forts.

TYRESIO, in Geography, a sea-port town of Sweden, in Sodermannland; its sails E. of Stockholm.

TYRI, a lake of Norway, in the province of Aggerhus; 15 miles N.W. of Christiana.

TYRIEUM, in Ancient Geography, a considerable town of Affa, in Phœdia, called alto Tyrus.

TYRINGHAM, in Geography, a town of Maffachusetts, in the county of Berkshire, containing 1689 inhabitants; 140 miles W. of Boston.

TYRIUM MARMOR, a name given by the ancients to a species of marble of a beautiful white, sometimes free from veins, and sometimes variegated with dusky blackish-grey ones. When pure, it was little inferior to the Parian, and often was used instead of it by the flattuaries. See MARBLE.

TYRNAU, in Geography, See TIRNAU.

TIRNAU, a town of Moravia, in the circle of Olmutz; 14 miles N.W. of Olmutz.

TIRNITZ. See Dyrnitz.

TYRNSTEIN. See Dierensteyn.

TYRO. See Tyrocinium.

TYROCRINUM, TYROCRINY, formed of tyro, a raw beginner, a noviciate or apprenticeship in any art or science.

We have several writings under the title of tyrociniums; tyrocinium chyomicum, tyrocinium chirurgicum, &c. containing the rudiments of those arts, accommodated to the apprehensions of beginners.

TYROL, in Geography, a citadel which gives name to the Tyrolean county; 1 mile N. of Meran. N. lat. 46° 37'. E. long. 11°

TYROKEI, or Upper Austria, a county, bounded on the north by Bavaria, on the east by Salzburg and Carinthia, on the south by Italy, and on the west by Bavaria and the Grisons; in this circle are included the county of Tyrol Proper, the bishopric of Trent, and the bishopric of Brixen. The bishopric of Trent is situated to the south; the bishopric of Brixen occupies the north-east part; and the county of Tyrol the centre. This county is mountainous, and capable of making a powerful stand against an invading enemy; but the Tyrolian mountains, though covered with snow to the utmost summits of them, are also fertile, where are found not only the finest woods, abounding in a variety of game, but also large and good corn-fields; or, where these mountains are bare, there are, for the most part, mine works, or excellent marble, of all colours. Corn thrives well in many, many in most places here; and in some places flax. On the eminencies grow also all forts of fine fruits which Italy yields, and likewise small woods of chestnut trees, together with fine vines. Among the wild herbs here
here are chamois and wild goats. There are, likewise, in this county, several species of precious stones, as garnites, rubies, amethysts, and emeralds, a species of diamonds, sapphires, cornelians, chalcedonies, &c. Hot baths and medicinal springs are found in several places; at Hall are profitable salt-pits. Not far from Schvatz is a mine of silver and copper; and some miles distant from the latter is also a mine work, which yields a very soft and melliferous copper. The copper contains in it some silver and gold. Good lead, together with fine mineral strontia, alum, vitriol, and fine ffer, are also found here. The principal rivers in this county are the Ihn, or Inn, the Adige, the Lech, and the Isr. In this county are twelve towns and ten villages, which have markets. The common people here, exclusive of the subsistence which the mines and salt-works yield them, have not much to eat; so that a great part of them seek for subsistence out of the country, either by trade or labour. Tyrol was formerly a part of Rhetia, but, in the sixth century, the greatest part of it defended to the dukes of Bavaria, and this was afterwards reckoned in Noricum; but, over the southern part, the Longobards, at the same time, extended their dominion. The dukes of Bavaria appointed margraves here; but Henry the Lion, duke of Bavaria and Saxony, being, in 1180, put under the ban of the empire, by the emperor Frederic I., this last demifembered the present province of Tyrol from Bavaria, inventing there-with the margrave Berchtold, under the title of duke of Meran. Otto II., grandfion to this Berchtold, dying without male issue, in the year 1245, this county came to count Albrecht III., who resided at the citadel of Tyrol, gave up the title of duke of Meran, and styled the whole country the county of Tyrol. Tyrol had, afterwards, frequently princes of its own, of the house of Austria; the last of whom, named Sigismund Francis, died in 1665, upon which the emperor Leopold received homage on that account, in person, at Inpruck; and by the peace of Prebuff was it ceded to Bavaria. The high foreign colleges over Tyrol, when subject to the house of Austria, were seated at Inpruck; and towards the maintenance of the military state, it contributed yearly 100,000 florins.

TYRONE, a county of Ireland, in the province of Ulter, which is entirely inland, and very irregular in its shape. On the north it has the county of Derry; on the west, Donegal; on the south, Fermanagh and Monaghan; and on the east, Armagh, with Lough-Neagh. Its divisions from these counties are seldom marked by nature, but the river Blackwater bounds it for about 30 miles on the south- east; and, the river Fin and Foyle for about 10 miles on the north-west. The greatest breadth of this county is 43 Irish miles, or 54 English; and the greatest breadth 33 Irish, or 42 English. The area measures 467,700 acres, or 724 square miles Irish, which is equal to 751,878 acres, or 1,663 square miles English. Dr. Beaufort states the number of houses at 28,704, which, at 54 per house, would give a population of near 1,580,000, or about 30 to each square Irish mile. As this was the statement in 1792, the increase must have been considerable. The number of parishes is only 35, and there have 54 churches. Most of these are in the diocese of Armagh, but there are some in the dioceses of Derry and Clogher. Tyrone is represented in the imperial parliament by two members for the county, and one for the borough of Dungannon. The northern part of the county is rough and mountainous. The Cairntogher and Muncasterly mountains occupy a large space; and to the south of these are the high hills called "Bally Bell" and "Mary Grey." These produce very little, being in general wet and spongy. Where, however, gravel or any porous subflance forms the subflatum, the surface is dry and wholesome, and well calculated for pasture. The other parts of the county contain very good land; and some districts are remarkable for their fertility, especially the neighbourhood of Dungannon, extending eastwards towards the Blackwater, and about Cooktown. The produce of this county, and the trade of manufactures, agree in the leading feature of the northern districts. The farms, except in the mountainous districts, are usually small; and the produce in general oats, barley, potatoes, and flax. The linen manufacture is extensively carried on; and it gives a favourable idea of the industry of the inhabitants, to learn from the county survey, that much cultivated ground has been gained from the bogs and mountains. In all parts of this country," said Dr. Beaufant in 1792, "cultivation is creeping, and that not slowly, up the sides of all the hills and mountains that are capable of improvement." In this county, the culture of the grasses called fioria was commenced by Dr. Richardson at Clonfeale, near May, the excellencies of which have been laid before the public in various publications, and have attracted the attention of many eminent agriculturists. Many parts of Tyrone contain large quarries of lime-stone, though it is not generally used for manure. There are also many quarries of free-stone; and good mill-stones are hewn out of detached rocks. It is probable that iron-ore is abundant; but without greater plenty of fuel, it can be of no use. Clay fit for bricks, and for various kinds of pottery ware, is also found in many places. But that mineral which has engaged most attention is coal. At Coal-Island, in the eastern part of the county, coal-works have been carried on with some success. Five pits were working in the year 1800, with the appearance of industry. There seemed, however, a want of encouragement; and the canal, which had been made from this place to the Blackwater, was choked up with mud and weeds. A familiar account may be given of the collieries at Drumglaf, near Dungannon; for those above 140,000/. were expended from the national purse in making canals, independently of private exertions, the object has not been obtained; and the Newry canal, instead of conveying the Tyrone coals to that port, to be shipped for Dublin and other places, supplies the county through which it passes with English and Scotch coal. At the time of making these grants, from 1751 to about 1770, there was a surplus of the revenue, which was spent on various public works, but not always to advantage, and very seldom with economy. In the instance above mentioned, the object was to save the large sums spent annually out of Ireland for coal, or rather to procure a supply of that article on lower terms than it was usually obtained. But though some advantage has arisen from the Newry canal, so great has been the expence attending it, and so complete the failure of all the other parts of the speculation, except for the supply of the adjoining country, as seems to illustrate the opinion, that the interference of government in such plans seldom succeeds, and that the grants intended to encourage them are too commonly abused and perverted. It has been said, that there are indications of a rich coal mine near the village of Drumquin, in the fourth-wheat of the county, and in a district abounding with iron-ore; and as this is only 12 miles distant from Lough Erne, a canal has been recommended; but since the union, and especially since the taxes have preffed so heavily on all ranks, such speculations are not so readily adopted. The report of Mr. Griffith, the mining engineer of the Dublin Society, on the Ulter coal district, will throw much light on the subject; but his opinion, as expressed in his report on the Leinster
Leinster district, is not favourable to the extent or value of that in the county of Tyrone.

The rivers of this county are very numerous, so that it is well supplied with water for bleaching, &c. The principal river is the Mourne, which paffes through the centre of the county from south to north. It rifes in the mountains near Clogher, and receives several streams before it comes to Omagh, where it is joined by the Cameron from the south; and a few miles lower, by the Po from the west. At Newtown-Stewart the united streams of the Moyle, and another river from the mountains between Tyrone and Derry; and at Arddraw the Derg, which flows from Lough Derg, in the county of Donegal, add their fhores. Thence it runs to the town of Strabane, below which it meets the river Fin, from the county of Donegal; and they proceed together, under the name of Foyle, to the sea, being navigable for large boats. The river Blackwater, which is also navigable for about ten miles of its course, is of great service to the eastern part of the county. The Ballinderry paffes by Cookstown, and afterwards becomes the northern boundary, until it flows into Lough Neagh. The other streams are incumberable, and there are no lakes which deferve notice. The towns of this county are not large; Omagh is the county-town, probably on account of its central situation; for it is inferior to Dungannon or Strabane. Dungannon was the principal refidence of the O'Neils, when chief-tains of Ulter. These towns, and Cookstown, May, &c. are mentioned under their respective names. The country and inhabitants near Newtown-Stewart were much improved by the exertions of lord Mountjoy, who was killed at the battle of Rofs in 1708, fighting againft the rebels, at the head of his regiment. His ufeful and benevolent plans have not, however, been neglected. About Fintona good flourifiting and ridge tiles are made, and a great variety of crockery ware for country use. Near Coal-Iland is a pottery, fuppofed to be the birth in Ireland for rough crockery ware, fire-bricks, and tiles for mafk-hins, which are of as good a quality as any imported. The fame clay made into small oblong pieces, and dried in the fun, is ufed for cleaning of leather, &c. and is lent for this purpofe to very ditfant places.

Having this it is an account of the prefent state of Ty- rone, with refpect to its productions and manufactures; it may be added, that when O'Neil, the descendant of the kings of Ulter, was compell'd to submit to queen Elizabith, he was created earl of Tyrone; and when his rebellion, in the reign of James I., occasioned the forfeiture of his po- feffions, this was one of the counties planted, that is, allotted to fettlers, chiefly from Scotland, whose defendants are at prefent the principal landed proprietors.—M'Eway's Survey of Tyrone. Beaouf't Memoir of Map of Ireland, &c.

Tyrone, a township of Pennsylvania, in the county of Adams, containing 648 inhabitants.—Alto, a township of Pennsylvania, in the county of Cumberland, containing 2604 inhabitants.—Alto, a township of Pennsylvania, in Huntingdon county, containing 753 inhabitants.—Alto, a township of Pennsylvania, in Fayette county, containing 986 inhabitants.

Tyrro, a circuit of Hindooflan, in the fubah of Bah- bar, bounded on the north by Morung, on the eafh by Pur- nacah, on the fouth by Bogilpore, on the fouth-west by Hay- pour, and on the west by Bettiah. Durbungah is the capital.

Tyrosis, from τρύζω, formed of τρύς, chief, in Medicine, a coagulating or curdling of milk in the flomach, after the manner of cheese.

Tyrrell, James, in Biography, a political writer and historian, was the fon of Sir Timothy Tyrrell, Kn., of Shotover, near Oxford, by Elizabeth, the only daughter of archbishop Uftter, born at London in 1642, and admitted, in 1657, a gentleman-commoner of Queen's college, Oxford. Devoting himself to the study of the law at the Inner Temple, he was called in 1665 to the bar. But declining the prac- tice of his profEfion, he refided at Oakley, in Buckingham- shire, and studied the history and constitution of his country, of which he entertained more liberal sentiments than those with which he commenced his refearces. In 1691 he pub- lished an anfwer to sir Robert Filmer's patriarchal fcheme, under the title of "Patriarcha non monarapha; or, The Pa- triarch unmonarched." Having refused to affift in the abolition of the penal laws, and the teft againft popery, he was struck out of the commiffion of the peace by James II. As a zealous friend to the Revolution, he vindicated king William's right to the crown in "Fourteen Political Dia- logues," printed from 1692 to 1695; which were afterwards collected into one volume folio, with the title of "Bibliothea Politica, &c." in which all the chief arguments, both for and againft the late revolution, are impartially refpedted and confidered. He also componed an abridgment of bishop Cumberland's work "De Legibus Naturae," 1692, 8vo. of which work a fecond edition, corrected and enlarged, was printed in 1701. But his principal performance was "The General Hiftory of England, both Ecclefaftical and Civil, from the earlieft Accounts of Time," concluding with the reign of Richard II., and comprifed in 5 vols. fol. 1700— 1704. The political purpofe of this work seems to have been to confute the learing doctrines of Dr. Brady, who maintained that all the liberties and privileges of the people of England were confessions from the kings, and derived from the crown; and that the refentment of the commons, as now exifiting, was not introduced before the 45th of Henry III. These points are still controverted, and serve to diftinguish two parties in the flate. Mr. Tyrrell died in 1718, in his 76th year. Biog. Brit.

Tyrrel, in Geography, a maritime county of North Ca- rolina. It contains about 3364 inhabitants.

Tyrrel's Bay, a bay on the south coast of St. Vincent; 2 miles E. of Kingstown.

Tyrrel's Poet. See Tyrrel's Poet.

Tyrrehenia, in Antient Geography, that part of Italy which is now called Tuscany; but more extensive to- wards the north and south-coaft. This country has changed both its name and its inhabitants.

The Umbrians were expelled by the Pelafigi, and thefe by the Lydians, under the conduct of Tyrhenus, the fon of the king of Lydia, whence the name Tyrrenia. As the Tyrrenians were a religious people, and offered many facri- fices, the Greeks called them Thusi, or Thunzi, denoting facrificers, from θυς, to sacrifice. See TURRIA and TUSCANY.

Tyrrehenus Sinus, a gulf of Italy, on the coast of Etruria. According to Dionyfius of Halicarnaffus, this gulf was denominated "Autumnus Sinus."

Tyrtaeus, in Biography, a Greek poet. is fuppofed to have been a native of Miletus, and to have refided at Athens, as a poet, musician, and school-master. Somewhat deformed in body, he poetifed a manly and elevated fent. In a conflft between the Lacedemonians and Meffennians, the former, having experienced fome ill fuccefs, are faid to have confeffed the oracle of Delphi. B.C. 623, and to have been directed to fearch a general at Athens. The Athenians, as some fay in derifion, sent Tyrtaeus, who, by the recital of poems in praise of valour and patriotism, animated the Spartans, fo that they became victorious, and reduced the Meffennians to subjection. He is faid to have give them useful
useful advice as a military leader, in consequence of which
the Spartans conferred upon him the right of citizenship,
and honoured him whilst he resided among them. His war-
poems have been celebrated by the ancients, and particularly
by Horace, who joins him with Homer in his eulogy:

"— Poff hos insignis Homerus
Tyrrænsque mares animos in martia bella
Veribus exsult. —"—Art. Poet.

Besides these poems, he composed, also, "Moral Pre-
cepts," and a work "On the Polity of the Lacedae-
moniens." Some fragments of his "War-Poems" are extant,
which are referred, with the other minor Greek poets, and
are said to be characterized by a marcelline simplicity. Mo-

TYRVANDO, in Geography, a town of Sweden, in
Tavastland: 10 miles N.N.W. of Tavastlin.

TYRVIS, a town of Sweden, in the government of
Abo; 35 miles E.S.E. of Borinorge.

TYRUS, in Ancient Geography, a town of the Pelopon-
nesus, in Laconia.—Alfo, a town of Asia Minor, in Lydia.
—Alfo, an island settled on the coast of Syria, near the
continent, according to Tulemy.—Alfo, an island settled
in the Persian gulf. Strabo.

TYRUS, a word used by some of the barbarous writers
for a serpent or viper.

TYRWHITT, Thomas, in Biography, a profound
scholar and acute critic, was born in 1730, sent to Eton
school in 1741, and entered at Queen's college, Oxford,
in 1747. In 1755 he was elected fellow of Merton college,
and in 1756 acted as under secretary of war. In 1762
he became clerk to the house of commons, which post he
retained till the year 1768. At this time he retired to pursue
the life studies which were adapted to his genius and taste,
and to the requirements he had already made in the knowledge
of ancient and modern languages, and of the old as well
as modern writers of his own country. He commenced his
publications with compositions in poetry; such were "An
Epistle to Florio," and Latin versions of the "Mellisah"
and "Splendid Shilling," with an English one of "Pindar's
eighth Ithilian Ode." In 1766 appeared his "Observations
and Conjectures on some Passages of Shakspere," which
e-enabled him to communicate ingenious remarks to Mr.
Steevens and Mr. Reed, for their editions of the works of
this great dramatist. His "Proceedings and Debates in the
House of Commons in 1620 and 1621, from an original
MS. in Queen's College, Oxford," appeared in the same
year; and in 1768 he published a corrected and enlarged
edition of "Ellynges's Manner of holding Parliaments in
England." His first publication in critical literature was
"Fragmenta duo Plutarchi," 1773, from one of the Har-
leyan MSS. This was followed by a very valuable edition
of Chaucer's "Canterbury Tales," in 4 vols. 1773, which,
besides corrections of the original text, contains an intro-
duction and admirable essay on the author's language and
verification. In 1776, he further displayed his Latin erud-
tion and critical acumen, by a Latin dissertation on Babrius,
one of the writers of the Elegiæ fables. In 1777 he gave
a complete edition of the poems attributed to Rowley, with
a preface and glossary. In a subsequent edition, which
appeared in 1778, he expresses his full conviction, with the
grounds of his opinion, that they were written solely by
Chatterton, and he afterwards satisfied all unprejudiced
judges with regard to this subject of literary controversy.
(See CHATTERTON.) We shall merely enumerate his re-
mainings works, which were, an edition of a Greek poem,
Πίπο Αίδων (on Stones), ascribed to Orpheus, together
with a supplement to his dissertation on Babrius, 1781;
"Conjecturae in Strabonem," 1783; and a newly discovered
"Oration of Iaicus against Menocles," 1785. Mr. Tyrwhitt
was a member of the Royal and Antiquarian Societies, and
a curator of the British Museum. He died, much lamented,
in 1786, in his 56th year; having established a character that
was truly estimable. He bequeathed to the British Museum
all those of his books which were not before in that re-

TYSCA, in Ancient Geography, a country of Africa,
in which there were fifty towns. Maffimia and the Carthagin-
iens disputed the possession of this country, and the dispute
was referred to the senate of Rome, according to Appian.

TYSERRA, in Geography, a town of Hindostan, in
Bihar; 32 miles S. of Dofea.

TYSHAS, among the Ethiopians, the name of the
fourth month of their year, commencing the 27th of No-
ember in the Julian year.

TYSNASOE, in Geography, a small island in the North
sea, near the coast of Norway. N. lat. 60°.

TYSSENS, Peter, in Biography, was born at Ant-
werp in 1625, and practiced painting in portraiture and his-
tory with very great success. In the latter, however, he
acquired the most substantial portion of his fame; and after
the death of Rubens, he was made director of the Academy
at Antwerp. He died in 1692, aged 67, leaving two sons painters.

TYSTED, in Geography, a town of Denmark, in North
Jutland, situated on a river which runs into the Limfodd
gulf; 40 miles W. of Aalborg. N. lat. 57° 3'. E. long.
8° 45'.

TYTSAARSl, a round island of the Baltic, belong-
ing to Russia: it is pretty high, but not above ten versts in
circuit. It lies 18 versts to the S.E. of Hochland. As ap-
pendages, on the western side, or in the Sound, between it
and Hochland, it has four small isles, quite low, but pretty
far afunder: Kleintitter, the two Viri, and Væotcalla, and
on the southeren side a flody ground, seven or eight versts in
length, to the Narva palfage; hence, it is hardly possible
to land on this island. A third part of it is rock, another
third is morafs, and the remaining part an arid and sterile
sand-hill. The island has no springs. The seal-fishery is
here considerable: the inhabitants live together in one
village.

TYTH, or rather Titha. See TITH.

TYTHING, and Thing-man. See TITHING, DECI-
NERS, TENEMENTAL, HUNDRED, WAPENTAKE, &c.

TZAGANUSKOI, in Geography, a town of Russia,
in the government of Irkutk, on the borders of Chine; 48
miles S.S.W. of Selengirk.

TZAGONIA, a district in the fourth part of the Morea,
between Mistra and Cape Malio.

TZAMAMIEN, a town of Asiatic Turkey, in the
government of Marafch; 40 miles S.E. of Marafch.

TZAMANDUS, in Ancient Geography, a town of Asia,
in the vicinity of the Lesser Armenia.

TZANATL, in Ornithology, the name of an American
bird described by Nieremberg, which, he says, has all over
very long and beautiful feathers, of a fine green, and of the
finishing glos of the feathers of the peacock. The upper fide
side of the wings is black, but their under part is of a very fine and shaded green; it has a very beautiful crest on its head; its throat and breast are of fine scarlet; the wing-feathers are very long, and very beautifully variegated with several colours. The Indians esteem the feathers of this bird more valuable than gold; they dress up the images of these birds with them. Ray's Ornithol. p. 503.

TZANGAE, among the Ancients, a kind of Parthian garments, according to some; but others will have them to have been shoes set with precious stones, formed into the figure of eagles, and designed for the emperor's use.

TZANI, in Ancient Geography, a people of Asia, in the vicinity of Armenia. According toProcopius, they were formerly independent, and lived a savage life; worshipping birds and other animals, and inhabiting mountains covered with thick and dark forests. They paid no regard to agriculture, and had neither corn nor pastures, so that the culture of the soil was wholly neglected. They had no restraint on their liberty, till they left it under Juffanian, to whom they voluntarily surrendered themselves. In process of time they embraced Christianity, which produced a total change in their manners and habits. They afterwards served in the Roman armies. Juffian contributed, by the regulations which he introduced, to civilize them. But some authors say, that at this day the Tzanius have no kind of religion; that they have neither temples, nor altars, nor priests, nor any worship.

TZANPAU, in Ornithology, the name of an American bird described by Nieremberg, and famous for the modulations of its voice, and is by many esteemed the female of the polysyllaba avis, or concanatolisi of the Indians.

TZAREVAGOR, in Geography, a town of Russufa, in the government of Tobolik; 28 miles S.E. of Okunevok. N. lat. 55° 20'. E. long. 64° 34'.

TZAREVOKOKCHAIISK, a town of Russufa, in the government of Kazan; 68 miles N.W. of Kazan. N. lat. 54° 52'. E. long. 47° 34'.

TZAREVOSANGUURSK, a town of Russufa, in the government of Viatka; 100 miles S.W. of Viatka. N. lat. 57° 48'. E. long. 47° 54'.

TZARI, a town of the principality of Georgia, in the province of Kakot; 95 miles S. of Tefs.

TZARITZIN, a town of Russufa, in the government of Saratow, on the Volga, defended by a ditch and rampart, with artillery and a considerable garrison; 180 miles S. of Saratow. N. lat. 48° 35'. E. long. 44° 34'.

TZEKINSKOI, a fortress of Russufa, in the government of Irkutik; on the borders of China; 100 miles W.S.W. of Selenginsk.

TZEPETH. See Safad.

TZERIMISH, a horde of tarts, pretty numerous, in the neighbourhood of Kazan.

TZERNA, a river of Romania, which runs into the Mariza, near Tvernitz.

TZERNITZ, a town of European Turkey, in Romania, near the Tzerna; 52 miles N.N.E. of Adrianople.

TZERVINKA. See Zervinka.

TZETZES, John, in Biography, a Greek poet and grammarian, flourished in the twelfth century, and was distinguished by his talents, natural and acquired, and particularly by a retentive memory, inasmuch that he had the whole Scriptures by heart. He was the author of "Allegories on Homer," and of "Miscellaneous Histories," in thirteen chilliads, written in that lax kind of verse which is called polite, or popular. The characteristics of this poet, lays one of his biographers, appear to be tediousness and infi-

TZU

pidity with arrogance. As a critic, he gave scholia upon Hesiod. His Allegories were published by Morel, Paris, 8vo. Gr. and Lat., with notes, 1616; and his Histories or Chillidae at Bali, fol. 1546.

The brother of the preceding, ISAAC Tzetzes, published learned commentaries on Lycephoron, which have been considered as the joint productions of both brothers: they are reprinted in Potter's edition of Lycephoron, Oxon. 1657. Morel. Gen. Bing.

TZICATLINA, in Zoology, a species of serpent, found to be found in America, and reckoned among the most beautiful of that kind of animals. It is nine inches long, about the thickness of a man's little finger, and variegated with alternate swaths of white and red crossing its body. It is likewise one of the harmless kind of serpents.

The name signifies the serpent of ants, because it lives always in their nests, and comes out along with them.

TZIECHANOW, in Geography. See Chekanow.

TZIEL, a town of the duchy of Warfaw; 35 miles W. of Pofen.

TZIGENO, a town of Crotia; 10 miles S.E. of Creutz.

TZIKIRSKOII, a fortress of Russufa, in the government of Irkutik; 120 miles W.S.W. of Selenginsk.

TZILEI, a town of Walachia, on the Danube; 20 miles W. of Nicopolii.

TZIMLIANKA, a town of Russufa, in the country of the Cofacks, on the Don; 116 miles E.N.E. of Azoph.

TZINTZIZIAN, in Ornithology, the name of a very beautiful American bird, described by Nieremberg, of the size of a small pigeon, and ornamented with variously-coloured feathers. The beak is short, crooked, and of a pale colour; the head and neck are like those of the pigeon; the breast and part of the belly are red; but that part which is next the tail is of a fine elegant blue, and a bright white, beautifully intermixed with one another; the tail is green on the upper part, and black underneath; the wings are variegated with white and black; the feet and legs are grey, and the shoulders of a very beautiful green. It is most frequent near the South Sea, and feeds on vegetables. It is kept in cages for its beauty, but never fings. The Indians make several beautiful works of its feathers. Ray's Ornithol. p. 303.

TZIOURLY, in Geography. See Tsordii.

TZIVILSK, a town of Russufa, in the government of Kazan; 56 miles W. of Kazan. N. lat. 55° 40'. E. long. 47° 34'.

TZNA, a river of Russufa, which rises 20 miles S. of Tambow, and runs into the Molchka; 25 miles N.W. of Temnikow, in the government of Tambow.

TZTACTZON, in Ornithology, an American name, under which Nieremberg has described a species of duck, remarkable for the varieyied and beautiful colours of its head, which are purple, blue, white, and green, and shine like fatin; its body is variegated with black, grey, and white; its legs are red, and is eaten as the other water-fowl. It is common in the lakes of Mexico, and has been much more adapted to swimming than to walking. Ray's Ornithol. p. 299.

TZURUCHATU, Sthan, in Geography, a town of Russufa, in the government of Irkutik, on the Argonia, on the borders of China. This is one of the towns in which a private trade is carried on between the Russians and the Chinese. It has a small garrison; 150 miles S.E. of Nertschinsk. N. lat. 49° 18'. E. long. 119° 32'.
U. and V.

V A A


Besides the vowel u, there is a consonant of the same denomination, wrote v or v.

V, a consonant and U vowel ought to be considered as two letters; but as they were long confounded while the two uws were annexed to one form, the old custom still continues to be followed.

U, the vowel, has two sounds; one clear, expressed at other times by eu, as obtine; the other elofe, and approaching to the Italian u, or English oo, as obound.

V, the consonant, has a sound nearly approaching to thoite of b and f. With b it is by the Spaniards and Gaccons always confounded, and in the Runic alphabet is expressed by the same character with f, distinguifhed only by a diacritical point. The found in English is uniform: it is never mute.

V is also a numeral letter, and signifies five; according to the verfe,

"V vero quince dabit tibi, si recte numerabis."

When a dash was added at top, V, it signified 5000.

V. R. among the Romans, froid for uti rosas, as you define: which was the mark of a vote, or suffrage for the paffing of a law.

The following abbreviations fometimes occur; vix. V. A. for veterani assignati; V. B. vero bono; V. B. A. viri boni arbitratus; V. B. F. vir bono fidei; V. C. vir confidibus; V. C. C. F. vale, conjux charifime, feliciter; V. D. D. voto dedicatur; V. G. verbi gratia; V. L. videlicet; V. N. quintus nonarum.

V, on the French coins, denotes thoite that were flucc at Troyes.

V, in Music, besides its numerical import of five, in ancient madrigals implies quinta pars, a fifth part added to the treble, counter tenor, tenor, and bafe. In instrumental music it bands for violin, as V.V. do in the plural for violins. V. S. are the initials of vero fubito, Lat. ; and voli fubito, Itala, for turn over quick.

VAAGEN, East, in Geography, an island in the North sea, 20 miles from the coast of Norway. N. lat. 68° 26'V.

VAAGEN, West, an island in the North sea, 30 miles from the coast of Norway. N. lat. 68° 12'.

VAAGSOE, a small island in the North sea, near the coast of Norway. N. lat. 61° 57'.

VAARSOE, a small island of Denmark, on the E. coast of Jutland, at the mouth of the gulf of Holfens. N. lat. 55° 53'. E. long. 10° 1'.

VAAS, a town of France, in the department of the Sarte; 21 miles S. of Le Mans.

V A C

VAAST, St. See St. Vaast.

VABAR, in Ancient Geography, a town of Africa, on the coast of Mauritania Cafreriflfs. Ptolem. VABAR, Abl-oane-man-bar, a promontory of the easter part of Mauritania Cafreriflfs. Ptolem. The port Salde, mentioned by Strabo, lay S.E. of this promontory.

VABB, a town of Africa, in Mauritania Tingitana, formerly sometimes denounced Julia Campestris.

UABE, in Geography. See HIBAL.

VABELIRAKE, an island in the Red sea. N. lat. 25° 8'.

VABRES, a town of France, in the department of the Aveiron, at the union of two small rivers, which soon after run into the Tarn. Before the revolution, it was the seat of a bishop, suffragan of Alby; 2 miles S.W. of St. France.—Allo, a town of France, in the department of the Cantal; 4 miles E. of St. Flour.

VACAN, one of the small Philippine islands, near the N. coast of Samar. N. lat. 12° 47'. E. long. 121° 15'.

VACANCY, in Philosophy. See VACUUM.

VACANCY, in Law, &c. a post or benefice wanting a regular officer, or incumbent.

The canons hold, that the kind of vacancy is to be expressed in the impetration of a benefice.

A future vacancy, or voidance of a spiritual living, some writers call vacatuta. Devolution is a species of canonical vacancy.

Vacancy of the Throne. See Right of Crown, and Revolution.

VACANT Effects, Pradia Vacata, or Vaca, are such as are abandoned for want of an heir, after the death or flight of the former owner.

In our law-books, vagantes terras, for vacantes, express forfaken or uncultivated lands.

A Romish benefice is said to be vacant in curia Romana, when the incumbent dies in Rome, or within twenty leagues of it; though it be only by accident that he was there. The pope nominates to all benefices vacant in curia Romana, excepting those of the neighbouring bishoprics.

VACANT Cylinder, in Gunery. See CYLINDER.

VACARIA, Aucaria, or Caucaria, in Ancient Geography, a place of Africa Propria, on the route from Hippone to Carthage, between Vicus Augusti and Tuburbo Minus, according to the Itinerary of Antonine.

VACARIA, in Geography, a town of Egypt; 8 miles N.E. of Habateh.

VACARICA, a town of Portugal, in the province of Beira; 18 miles S.E. of Bragança.

VACAS, a river of Mexico, which rises in the province of Guatemala, and runs into the Pacific ocean, N. lat. 14° 22'. W. long. 92° 48'.
VAC

Vacas Bay, a bay on the S. coast of Africa. S. lat. 34° 15'.

VACAUSA, a small island near the W. coast of Lewis. N. lat. 58° 11', W. long. 6° 57'.

VACATAMA, a river of Peru, which runs into the Pacific ocean, S. lat. 9° 25'.

VACATING RECORDS, in Law. See IMPEZZALE.

VACATION, Non-term, all the time included between the end of one term, and the beginning of the next succeeding one. See TERMS.

This intermission was called by our ancestors pax Dei, and ecclesia; and sometimes, the time or days of the king's peace. Among the Romans, it was called jussicium or feria, or diet nefalia.

The time from the death of a bishop, or other spiritual person, till the bishopric, or other dignity, be supplied by another, is also called vacation.

During the vacation of a bishopric, the dean and chapter are guardians of the spiritualities, by the canon law; and of common right they are so at this day in England, and the archbishop hath this privilege only by prepetition or composition, to whom with us, during the vacancy of any fee within his province, all episcopal rights of the diocefe belong; and all ecclesiastical jurisdiction is exercised by him and his commissaries. But when an archepiscopal fee is vacant, the dean and chapter of his diocefe are guardians of the spiritualities, and exercise the spiritual jurisdiction of his province. And the perquisites that happen by the execution of fuch power belong to the guardian, but the new-elected bishop may by law, after election and confirmation, execute the same. See Custos Spiritualudum.

The custody of the temporalities of every archbishopric and bishopric within the realm, in the time of vacation, belong to the king, by his prerogative; and upon the filling of a void bishopric, the king, and not the new bishop, hath the temporalities of it from the time that the vacant became void to the time that the new bishop shall receive them from the king; which the king ex gratia may grant him by his letters patent after his confirmation, and before his consecration; but after he is consecrated, invested, and invested, he may sue for his temporalities out of the king's hands by a writ directed to the effirector; the metropolitan testifying the time of consecration. See Custos Temporaludum.

During the vacation of a benefice, the profits, by the common law of the church, were to be laid out for the benefit of the church, or referred for the feecfor; and by special privilege or custom the bishop or archdeacon might have the same, wholly or in part: and it is said, the king might take the profits of a free chapel, and the patron thofe of a donative. But by statute 28 Hen. VIII. c. 11. it is enacted, that the tithes and profits of spiritual promotions, offices, benefices, and dignities, during the time of their vacation, shall belong to the person next preffented, promoted, instituted, inducted, or admitted, towards the payment of his first-fruits. Ancientsly, upon the death of an incumbent, the rural dean, without any formal fequeration, took the vacant benefice into his custody; but in proffes of time, the chancellors of bishops, or their archdeacons, laid claim to this jurisdiction, and by forms of fequeration assigned vacant churches to the economi or lay guardians of the church; and now the ordinary mode of managing the profits of vacation is by sequeration granted to the church-wardens, who are to manage all the profits and expences of the benefice for the feecfor; whose right to the profits commences from the voidance of the benefice, and to whom the sequestrators are to account for such as they have received, deducting their reasonable expenses, and those of supplying the cure during the vacation. By 28 Hen. VIII. c. 11. an incumbent before his death may make his testament of all the profits of the corn growing upon glebe lands which he has manured and fown; but if his successor is inducted before the feuerance of it from the ground, the successor shall have the tithes of it; otherwise, if the parson dies after the feuerance of it, and before it is carried off, the successor shall have no tithes. Where there is no proper leave of tithes, the parson who receives them shall be accountable to the executor for thofe received by him, and which became due before the incumbent's death, and to the successor for tithes which he received, and which became due after the incumbent's death; but glebe lands, and tithes demifed or leafed, are comprehended under statute 11 Geo. II. c. 19. which enacts, that the executors or administrators of a tenant for life may, in an action upon the cafe, recover of the under tenant, if such tenant for life die on the day on which the rent was made payable, the whole, or if before fuch day, a proportion of fuch rent, according to the time fuch tenant for life lived, of the laft year, or quarter of year, or other part in which the faid rent was growing due. As to modus in lieu of the unexpired term, if taken in kind, would have been due before the death of the incumbent, whereas the modus for the fame is not due till after his death, it seems that the executors are not entitled to the faid modus, nor any part thereof, but that the whole shall go to the successor.

 Cicero, in his Orations, mentions a law, by which the priests were exempted from service in all wars, except only in uparos, and civil tumults; which exemptions he calls vacations.

VACCA, in Ancient Geography, a town of Spain, in the Pyrenean mountains, according to Isidore.

VACCA, Vaga, Bota, or Vagenos Oppidum, thus differently named by Sallust, Polonius, Plutarch, and Pliny, Bay-jab, a town of Africa, in Numidia, to leagues from Meternus Oppidum. According to Sallust, it belonged to Jugurtha, and he says, that when it revolted, he established it in Italians. Metellus was sent to reduce it.

VACCA, or Vaca, a river of Spain, in Lusitania, which pursuing its course from E. to W. passed to Talabriga, and soon after ran into the sea.

VACA, La, in Geography, a small island in the Mediterranean, near the S. coast of Sardinia; 3 miles S. of St. Antonico.

VACA, in Zoology, the female of the ox-kind. See Cow.

VACA Marina. See Sea-Cow.

VACCARIA, in Botany, so named from vacca, a cow, because, according to Ambrofius, cows are fond of the plant. His Vaccaria, like that of Dodonæus and Gerarde, is the Linnaean Saponaria Vaccum, referred by the writer of this to Gypsophila, see that article; with which genus its bell-shaped angular calyx, roundish capule, and whole habit, accord so exactly, that we are at a loss to account for Linnaeus's having placed it elsewhere. The Vaccaria of Tavernænamontan is very different, being our Taurus glabra; an herb agreeing with the former in the glaucous, smooth, entire leaves, of its stem at leaf, but otherwise having no character or property in common therewith, and certainly of too unfrequent occurrence, as well as of too slender a habit, to afford much support for a dairy. The above Gypsophila belongs to a natural order of plants to which farmers have, as yet, faintly recurred for any sort of fodder, the Comption tribe. Might not the same before us authorize an experiment at least, upon the qualities of this plant, as well as on thole of its near relation Silene inflata? Speculæ arvenses, 3 T 2, one.
VACCINATION.

one of this order, is reported to enrich the milk of cows, but has not come into any general notice. See Silene, sect. 2, and Spergula, n. 1.

VACCARY, Vaccaria, in our Old Writers, a house or place to keep cows in; a dairy-house, or cow-pasture.

VACCEI, Vacceans, in Ancient Geography, a people of the interior of Hither Spain, S. of that part of the country which was inhabited by the Aeturi. According to Diodorus, the Vacceans were the most gentle and politic of the Celtiberians. They were subjugated by L. Lucullus and Ch. Marcellus. It appears that they were a considerable people by the number of towns which Ptolemy assigns to them.

VACCINATION, or the Cow-pox inoculation, in Surgery, one of the greatest and most important discoveries of modern times. The discovery of the circulation of the blood, made by the celebrated Harvey, has unquestionably been the source of infinite improvement in every part of the healing art, and produced incalculable benefit; but vaccination, the discovery of another Englishman, the immortal Jenner, is a thing, which in its consequences certainly outdoes every previous innovation in practice, since it may be said to have annually the lives of millions.

Vaccination being the only known means of arresting altogether the fatal ravages of the small-pox, the most depopulating contagion upon the face of the earth, mankind will probably for ever feel a deep interest in the subject. In fact, nothing less than the well-established total extermination and permanent cefation of the small-pox, could ever justify a diminution of the laudable solicitude of the public for the continuance of vaccination. For it is not to be presumed, that a still milder and more effectual means of rendering the human body insusceptible of the effects of the small-pox contagion, will ever be discovered. A milder method, indeed, is hardly conceivable; since the symptoms produced by it amount only to a very slight indisposition, which never has any fatal or unpleasant consequnences. Its efficacy also is now fully confirmed by abundance of evidence, collected from the unied observations and experience of the best informed practitioners, who, it is obvious, can have no interest in the success of vaccination, but the general good of their fellow-creatures. Were medical men so base as to suffer their judgment to be influenced by mercenary considerations, they would decry with all their force the practice of vaccination, which occasions too trifling an indisposition to put many fees into their pockets; and they would necessarily praise the small-pox inoculation, by which a frequently long and lucrative attendance on their patients might be calculated upon as a matter of certainty.

A general account of the origin of vaccination has been delivered in the article Cow-pox, and on this interesting part of the subject we shall therefore merely recapitulate a very few particulars. As, however, it is an object of the frill-rate importance to be perfectly acquainted with every criterion of the genuine disease, we mean to introduce into this article some valuable instructions, which have been published by the lately and best medical writers, or which have been circulated by the National Vaccine Establishment, respecting the appearances of the true affection, and of some others, which are either spurious, or not to be depended upon. In this account will be comprehended a brief explanation of the method of practising vaccination. The rest of the article will be principally devoted to the consideration of the occasional failures to which the practice is liable.

It was an observation made long ago in several of the dairies in England, particularly in those in Gloucestershire, that the milk cows were frequently affected with an eruption upon their udders and teats, which was communicated not only from one cow to another, but frequently also to the hands of the milkers; and farther, that such of the milkers as had been thus affected, were never afterwards infected with the small-pox, either by inoculation, or by exposure to the most virulent contagion of that disease, even although such persons had not previously undergone that dreadful malady.

It is curious, that the knowledge of a fact so singular a nature, and one of so much importance to the general interests of society, should have been confined, from time immemorial, almost entirely to those occupied in the business of dairies, without being fully investigated by such persons as could duly appreciate its value.

Dr. Jenner, a physician at Berkley, in Gloucestershire, was the first person who set himself about examining this subject with that care and attention which its importance seemed to demand.

In the year 1798, after much diligent labour and investigation, Dr. Jenner published "An Inquiry into the Causes and Effects of the Variolae Vaccinae," and his observations soon excited the attention of the whole medical world. For a considerable time, the accuracy of the account was received among medical men with hesitation. The character, however, of Dr. Jenner, and the singularity and importance of the subject, led to further investigation; and although many arguments were urged, and circumstances stated, which seemed adverse to the plan of the general introduction of cow-pox among mankind, yet the great utility of it was at last clearly evinced. Every statement made by the accurate Jenner was confirmed, and the credit of the cow-pox, as a preventive of small-pox, was established on a basis too firm to be shaken by the shafts of envy, malice, or ignorance—the basis of immutable truth.

Dr. Jenner, not satisfied with the affections of the dairy farmers and servants, that persons who had been affected with cow-pox were rendered thereby secure against the attacks of small-pox, determined to ascertain the truth of this fact by the test of experiment. He inoculated for small-pox many persons who had formerly undergone the cow-pox, some for as long as thirty and even fifty years previously; and these he uniformly found, as had been predicted to him, completely refitted that disease.

So far the nature of cow-pox was known to others before it was known to Dr. Jenner. In the year 1796, however, this ingenious gentleman pushed his investigation farther; and on the 14th of May, he first intentionally infected the human constitution with the virus of cow-pox by inoculation, with the design, as he informs us, of observing more accurately the progress of the infection. The experiment succeeded; and the affection, though remarkably slight, was clearly marked in all its stages.

Dr. Jenner next conceived the idea of inoculating this person with the virus of small-pox, in order to ascertain whether he should an affection as had taken place from the cow-pox, could possibly give security from that dreadful disease. Several flight punctures and incisions were accordingly made in both arms, and the virus of small-pox was carefully infected, but no disease followed. Some months afterwards, the same person was again inoculated for small-pox, but still no sensible effect was produced upon the constitution.

This is to be reckoned the first discovery of Dr. Jenner respecting the nature of cow-pox, viz. that the matter of cow-pox, taken from the vesicles on the cow, and intentionally infected into the human subject, produces an affection,
VACCINATION.

tion, which, at the same time that it is more mild in its symptoms than that produced by accidental infection, does nevertheless ill operate such a change in the constitution, as renders the person infected unsusceptible of the small-pox.

The want of vaccine matter now prevented Dr. Jenner from prosecuting his experiments until the spring of the year 1798, when the cow-pox again became prevalent among the cows in the dairies in his neighbourhood, and afforded him an opportunity of investigating farther this interesting subject.

With matter taken from cow-pox vesicles on the teats of a cow, Dr. Jenner now inoculated several persons; and from these persons he propagated the affection to others, also by inoculation, even so far as the fifth change, without recurring to the original source, the vesicles on the teats of the cow. The experiments were completely successful. The affection, in all those inoculated, was regularly produced. All the persons who had been thus infected, were afterwards subjected to inoculation with the virus of the small-pox, but ineffectually, no disease in any instance succeeding to this operation. See Jenner's Inquiry, p. 43.

From these experiments, we derive another most important fact concerning the nature of cow-pox, viz. that the virus of cow-pox may be propagated from one human subject to another, through several gradations, and still retain the power, not only of producing the affection, regular in all its stages, but also of rendering those constitutions which are infected, secure against the attacks of small-pox.

By un wearied attention to all the circumstances under which he was accustomed to observe this ailment, Dr. Jenner was led to conclude, that persons who have already had the small-pox, are still susceptible of the action of cow-pox, though not to such a degree as those who have never been subjected to that of small-pox.

That in the cow-pox no eruption takes place, unless on the part where the virus is applied to the skin.

That the cow-pox, even under the most unfavourable circumstances, has never proved fatal.

That the cow-pox cannot be propagated by contagion, but only by actual contact, or inoculation with the virus.

That the virus of the cow-pox, infected into the human body, may produce an affection which is merely local, the general constitution remaining unaltered; and that, in such cases, the person is still liable to be infected with the small-pox.

Soon after Dr. Jenner's publication appeared, viz. in November, 1798, Dr. George Pearson published "An Inquiry into the History of Cow-pox, principally with a View to supercede and extinguish the Small-pox." In this treatise, the positions and conclusions of Dr. Jenner are examined with that candour and attention, which their importance demand. The evidences adduced are numerous and respectable, and the refutation is highly favourable to the general introduction of inoculation for the cow-pox among mankind, not only as a preventive of small-pox, but also as a certain mode of ultimately extinguishing that loathsome malady.

In May, 1799, were published "Reports concerning a Series of Inoculations for Cow-pox, with Remarks and Observations on this Diseaee, considered as a Substitute for Small-pox, by Dr. Woodville, Physician to the Small-pox and Inoculation Hospital in London." The account here given by Dr. Woodville is very different from that given by Dr. Jenner, and by no means favourable to the general introduction of the new inoculation as a substitute for small-pox. Such a report, coming from a man of Dr. Woodville's known character and reputation as an accurate observer, naturally produced a strong sensation in the minds of medical men concerning the discoveries of Dr. Jenner. The circumstances, however, under which Dr. Woodville's observations were made, and upon which his reports were founded, were such as led him to be much deceived respecting the true nature of the cow-pox.

This report of Dr. Woodville, so very different from the general statement of Dr. Jenner, naturally called for a reply from the latter, who accordingly, in 1800, published "A Continuation of Facts and Observations relative to the Variola Vaccinae." In this publication, Dr. Jenner is anxious to recover his favourite subject from that degree of shade, which had been thrown upon it by the hasty reports of Dr. Woodville; and this he appears to have done with great success, both by farther observations of his own, and by the concurrence of many respectable correspondents. See Bryce's Practical Observations on the Inoculation of Cow-pox, chap. 1, edit. 2.

With regard to Dr. Woodville's publication, we shall merely add in the present place, that the cafes reported by him as examples of inoculated cow-pox, attended with many severe symptoms, and particularly with an eruption over the body, have been fully proved, and indeed have been since allowed by that respectable physician himself, to have been in fact cafes of genuine small-pox, the infection having been contracted in the place where the patients were inoculated with cow-pox virus, before this latter affection had produced the effects and changes in the constitution, which render it a preventive of the other loathsome malady.

For additional particulars relative to the first progress of vaccination, we must refer to the article Cow-pox; suffice it here to say, that every objection to the practice was gradually removed; the public became convinced of its value and beneficial consequences; the great founder of it received an honourable remuneration from his country; both neighbouring and remote nations soon took a deep interest in the subject, and imitated our example; public institutions for the gratuitous inoculation of the poor were in a short time established in every civilized country; and the great benefit of the new plan were quickly extended to all the four quarters of the globe.

Description of the regular vaccine Vesicle.—When vaccination succeeds, a small red spot is observable on the third day, the day upon which the operation is performed being reckoned the first. If the spot be touched, an elevation is felt; and if examined with a magnifying glass, the little tumour appears to be surrounded by a very slight cell-refence.

The spot gradually enlarges; and between the third and fifth day, a circumscribed vesicle appears. The edge of the vaccine vesicle is elevated; the centre depressed. The colour is at first of a light pink, sometimes of a blueish tint, and changes by degrees to a pearl colour. The centre is somewhat darker than the other parts.

The vesicle is hard to the touch.

In its internal structure it is cellular, the cells being filled with transparent lymph.

The vesicle commonly augments, till the tenth or eleventh day.

In the early stages, there is usually round the base an inflamed ring; or this takes place on the seventh or eighth day. About the ninth, it spreads rapidly; and near the tenth, it forms an areola of an inch and a half in diameter. This areola is of the usual colour of inflamed skin; it is hard, and accompanied with some degree of tumefaction. It
VACCINATION.

It continues out for a day or two, and then begins to fade, sometimes forming two or three concentric circles. After the areola is formed, the vesicle begins to decline. The centre first turns brown, and the whole gradually changes into a hard smooth scab, of a very dark mahogany colour. This dry crust usually drops off about the end of the third week, leaving a permanent circular cicatrix, about five lines in diameter, and a little depressed; the surface being marked with very minute pits, or indentations, denoting the number of cells of which the vesicle had been composed.

Varieties in the Progress and Appearance of the Vaccine Vesicle, not Preventing the Success of Vaccination.—The first appearance is seldom earlier, but often later, than has been described. In some rare instances, the vesicle commences even a fortnight or three weeks after vaccination; and if the progress is then regular, it is equally efficacious.

When the vesicle is ruptured at an early period, if the progress continue regular, success is not prevented; nor is it when the crust of a regular vesicle is rubbed off in the decline of the disease, though ulceration should ensue.

Of irregular and imperfect Vesicles and Pustules, which are not to be depended upon.—In thedeviations, there is usually a premature itching, irritation, inflammation, vesication, or suppuration; or the progress of the vesicle is too rapid, its texture soft, its edge not well defined, its centre elevated, and the contents discoloured or purulent; or, instead of a proper areola, a premature efflorescence of a dusky purple hue takes place, and the scab is of a light brown or amber colour.

The irregular vesicle or pustule is more liable to be broken than the other, both from its more pointed form and softer texture, and also from its being usually so irritable as to provoke scratchings. When broken, or even without this happening, ulceration often ensues.

A vesicle, apparently regular at first, sometimes does not augment to the proper size, but dies away without completing the regular process. This usually leaves no cicatrix, or one which is almost imperceptible.

When these, or any other considerable deviations from the regular course of the disease, take place, no dependence can be placed upon the operation, and vaccination should be repeated.

Probable Causes of irregular Vesicles and Pustules.—These accidents may be occasioned by matter or lymph being taken from an irregular vesicle or pustule at any period, or from a regular vesicle, at too late a period; by lymph, though originally pure, which has been injured by long keeping, by heat, or otherwise. Or it may be caused by performing the operation with a rusty or unclean lancet, or in a rude manner, or by destroying the vesicle at an early stage, and thereby exciting too much inflammation, or interrupting the regular progress of the disease. Herpetic eruptions, and other cutaneous affections, have also been supposed to be the cause of these irregularities; and occasionally to prevent the vaccine lymph having any effect.

As Dr. Bateman observes, there are two causes for these imperfect inoculations: "the one is the infection of effete or corrupted virus; and the other the presence of certain cutaneous eruptions, acute and chronic.

"The lymph of the vaccine vesicle becomes altered in its qualities, soon after the appearance of the inflamed areola; so that if it be taken for the purposes of inoculation after the twelfth day, it frequently fails to produce any effect whatever; and, in some cases, it suddenly excites a pustule, or ulceration; in others, an irregular vesicle; and, in others, erythemas. If taken when scabs are formed over the vesicle, (as in the case of pustules of small-pox,) the virus is occasionally so putrefactive and acrid, that it excites the same violent and fatal disease which arises from flight wounds, received in inflicted withal bodies.

"Again, the lymph, although taken from a perfect vesicle, on the sixth, seventh, or eighth day, may be so injured, before its application, by heat, exposure to the air, moisture, rank, and other causes, as to be rendered incapable of exciting the true disease.

"The most frequent cause of these imperfections, however, seems to be the presence of chronic cutaneous eruptions, or the concurrence of eruptive fevers, or even of other febrile diseases. The chronic cutaneous diseases, which sometimes impede the formation of the genuine vaccine vesicle, have been described by Dr. Jenner under the ordinary indefinite term herpes and tinea exsudativa. In the more accurate phræatology of Dr. Willan, they are herpes, (including the hingles and vesicular ring-worm,) psoriasis, and impetigo (the dry and humid tetter); the lechen, and most frequently the varieties of porridio, comprising the contagious eruptions denominated by authors *sycula lacteal, areata, acaules, and favo.* Dr. Willan thinks that the itch and prurigo likewise have the same influence.

"Of the interference of eruptive fevers, measles, scarlet fever, and chicken-pox, with the progress of the vaccine vesicle, when it has perforated, numerous instances have been recorded. The supposition of its progress, indeed, would be expected, under such circumstances, from the known facts respecting the reciprocal action of these contagious fevers on each other. But the action of the vaccine virus is not only suspended by these fevers, so that the vesicle is very slow in its progress, and the areola not formed till after the fourteenth day, or later, and sometimes not at all; but it is occasionally rendered altogether inefficient. Even typhous fever, and the influenza, have been observed to produce a similar interruption in the progress of vaccination.

"Finally, the vesicle without an areola, takes place if the person inoculated have previously received the infection of small-pox, or if he be affected with some other contagious disease during the progress of vaccination.

"Other irregularities may probably have occurred. At all events, though the constitution is sometimes fully secured from the infection of small-pox, even by the irregular vesicles; yet as it is more commonly but imperfectly guarded by such vesicles, the propriety of Dr. Jenner's caution is obvious, that when a deviation arises of whatever kind it may be, common prudence points out the necessity of re-inoculation." See Bateman's Synopsis of Cutaneous Diseases, p. 219—221. edit. 3.

The Methods of taking Vaccine Lymph for Vaccination.—The lymph of a regular vesicle is efficacious from the time it is secreted, till the areola begins to spread. It may, therefore, commonly be taken till the ninth day; but not after the areola is fully formed.

The lymph is to be taken by small superficial punctures made in the vesicle, with the point of a lancet introduced horizontally. Time should be allowed for the liquid to exude, which will form small pelliculid drops. When requisite, a very slight preflure may be cautiously applied with the flat surface of the lancet. Great delicacy is requisite in this operation; for if the vesicle be rudely treated, or too much opened, inflammation and ulceration may ensue.

Lymph intended to be used immediately, or in a few days, may be received on a lancet; but this is an improper instrument for preserving it longer; for the lymph soon rufts the lancet, and it is then liable to be infectious, or injurious. Quills and tooth-picks succeed; but small bits of
of ivory, shaped like the tooth of a comb, and properly pointed, are the most convenient instruments; and to render them more certain, they should be charged repeatedly.

In order to preserve lymph for a long period, the best method is by two bits of square glass. The lymph is to be received on the centre of one of them, by applying it to a punctured vessel. When fully charged and dry, it is to be covered with another bit of glass of the same size, and wrapped up in paper or in gold-beater's skin.

In whichever way the lymph is taken, it should be allowed to dry without heat, in the shade, and be kept in a dry and cool place. When inclosed in a letter, if great care is not taken, it may be injured by the heat of the melted wax in sealing the packet.

The Mode of Vaccinating.—Liquid lymph is better than dry, because it seldom fails, and the operation is more lightly and quickly performed. Therefore in every infusion, where it is practicable, the patient from whom the lymph is to be taken should be present, and the lymph should be transferred immediately from him to the person who is to be inoculated.

Vaccination is generally performed in the arm, near the infection of the deltoid muscle; but in order to hide the fear, and in adults who are likely to use the arm much, it may be advisable to vaccinate the outside of the leg, a little above or below the knee.

The lancet being charged, the skin should be stretched, and a small superficial puncture made with the point of the lancet, held nearly in a horizontal direction.

The lancet should be dipped in water and wiped after each operation, even when several successive inoculations are to be performed.

Dry lymph on glass may be moistened with a very little cold, or tepid water, on a point of a lancet, allowing it some time to diffuse, and blending it by a little friction with the lancet. It must not be much diluted, but ought to have a thin consistence; it is to be infected in the same manner as the recent fluid.

When quills, ivory lancets, or tooth-picks charged with dry lymph are used, the lymph should not be diluted, but a puncture having been first made with a common lancet, the point of the instrument is to be infected, and held in the puncture half a minute or more, that the lymph may gradually diffuse and remain in the wound. If the part of the instrument which is charged be afterwards wiped repeatedly upon the edges of the puncture, it will tend still farther to ensure success.

Vaccinated patients must be cautioned not to wear tight breeches, nor to injure the vehicle by prepressure, friction, or any other violence, lest inflammation or ulceration should ensue.

One perfect vaccine vehicle is sufficient; but for various reasons it may often be prudent to make two or three punctures, especially when the danger of receiving the small-pox is imminent, the lymph dry, or the patient's resistance deficient. Bifides, greater security is obtained against a chance of failure from the derangement or destruction of one vehicle by accidental injury, or by the taking of matter for vaccination. When two punctures are to be made in one limb, they should be at least two inches asunder, on account of the irritation they may occasion. And one of them should be always permitted to go through its course undisturbed. Lancets for vaccination should be kept clean and bright.

Constitutional Symptoms.—Constitutional symptoms sometimes occur after every period, but more commonly from the seventh to the eleventh day. Thrice are drownees, rellasses, a chilliness succeeded by heat, thirst, head-ache, and other marks of febrile affection. Now and then fecknels or vomiting takes places, especially in infants.

The constitutional symptoms are in general light and transient, and such as require no remedy.

In a great proportion of cases, there is no perceptible indisposition; nevertheless, the person vaccinated is not the less secure from the future infection of the small-pox, provided the progress of the vehicle has been regular and complete.

Care should be taken not to confound the symptoms of other diseases with those produced by vaccine inoculation.

Medical Treatment.—In general, no medicine is required in this mild affection; but if the symptoms happen to run a little higher than usual, the same remedies are to be applied, as if they proceeded from any other cause.

No preparatory medicines are necessary before vaccinating, and commonly no cathartics need be given afterwards.

Should the local inflammation exceed the usual bounds, which rarely happens, unless from tight sleeves, pre-pressure, or friction, it may soon be checked by the frequent application of compreßes of linen dipped in water, in aqua lithergyri acetai compota, or in a solution of one drachm of cerussa aceta in a pint of water. These are to be applied cold.

If the scab be rubbed off prematurely, and ulceration take place, cooling and astringent applications may be used; such as a drop of aqua lithergyri acetai, which should be allowed to dry on the part, and then be covered with compreßes dipped in water, or in either of the preparations of lead above-mentioned, and frequently renewed.

When the ulceration is deep or extensive, a poultice either of bread and milk, or of bread with any of the preparations of lead, may be applied, as the case seems to require. They must never be applied till they are nearly or quite cold.

In such foul and oblitinate fores as resile the foregoing applications, the unguentum hydrargyri nitrat., mixed with an equal quantity of unguentum cerae, or other similar applications, may sometimes be resorted to with advantage. And at other times, these fores may be healed with the unguentum ceruöse acetae, or the mildew applications.

The irregular vehicles and pustules are frequently followed by ulceration at an early period, and this ulceration is to be treated in the same manner, as if it proceeded from the regular vehicle.

When the patient has been previously exposed to the infection of small-pox, this disease will be either supereroded or not, according to the time which may have elapsed before vaccination.

Observations on the occasional Infficacy of Vaccination.—When the vaccine vehicle parfisons the above-described characters, and passes through the regular gradations, whether accompanied with any perceptible disorder of the constitution or not, it effectually and permanently secures the individual from the danger, and almost universally from the contagion of the small-pox.

It is now nearly twenty years since the first promulgation of Dr. Jenner's discovery; and yet the truth of the preceding observation remains unimpeached. As a well-informed physician has remarked, the very exceptions to this statement may be found, without a solicitation, to corroborate it. For, in the very small number of cases, (such as that of the son of Earl Grosvenor), where an extensive eruption of small-pox has occurred subsequent to vaccination, the controlling influence of the cow-pox has been manifestly and strikingly manifested, by the sudden interruption of the small-pox in the middle of its course, and the rapid convalescence of the patient. See Bateman's Synopsis, p. 216.
VACCINATION.

With very few exceptions, indeed, persons who have undergone both the local and constitutional affection of cow-pox, are thereby rendered unsusceptible of small-pox.

It is not meant to assert, however, as has been too generally imagined, that every person who has been inoculated for the cow-pox, is rendered secure against the contagion of small-pox. As Mr. Bryce has ably explained, there are many circumstances, besides the mere inoculation, absolutely necessary to be ascertained, before this security can be guaranteed.

Again, says Mr. Bryce, it is well known, that a person having undergone the small-pox is not absolutely secure from a future attack of the same malady, as well authenticated instances are recorded, where the same person has undergone this disease a second time, and these attacks were neither of them local, but very certainly general constitutional affections. See the case of Mr. R. Langford, recorded in the fourth volume of the Memoirs of the Medical Society of London. This gentleman was infected with the small-pox at a very early period of life, and was much marked from the severity of the disease. Many years afterwards, he was again infected with the small-pox, which was of the common kind, and proved fatal on the twenty-first day from the attack. See also Dr. Woodville's History Of Inoculation, p. 217; Mr. Ring's Answer to Dr. Mofley, where many such cases are recorded; and the case of Lord Willemath's child, published in the Medical and Physical Journal, vol. xiv. p. 256.

Now, as Mr. Bryce remarks, with regard to the cow-pox, it may also happen, that a person who has undergone that affection, may yet be afterwards affected with small-pox; but, as is well known in the former case relative to small-pox, so also in the latter relative to cow-pox, the instances of the second attack from small-pox, or of the failure of the cow-pox to prevent the small-pox, are so very rare, as by no means to affect the general established rule; that persons who have once undergone the small-pox, or the cow-pox, as a constitutional affection, may that securily be reckoned secure against all future attacks of various contagion. (See Bryce's Practical Observations on the Inoculation of Cow-pox.) Besides the examples of the recurrence of small-pox a second time in the same individual, to be found in the publications already specified, additional instances are recorded by Dr. Jenner himself, Mr. Bryce, and in the Reports of the National Vaccine Establishment.

We shall here present the reader with the history of two remarkable cases published by this last institution; the one illustrating the occurrence of small-pox a second time in the same person, the other exemplifying the equally uncommon circumstance of an individual who had perfectly undergone vaccination, being afterwards affected with the small-pox.

Dr. Bree was called to visit Miss Sarah Booth, of Covent Garden theatre, on Monday, June 25th, 1811. She was said to be ill with the small-pox, and the following circumstances were reported by the mother and sisters. Miss Booth was then eighteen years of age. She had been inoculated for the small-pox at five years of age, and had been affected with the usual degree of fever. The arm had been violently inflamed, and an eruption of small-pox pustules had appeared round the inoculated part, from which matter had been taken by Mr. Kennedy, the surgeon who attended her. Mr. Kennedy expressed himself satisfied that Miss Booth had suffered regularly through the disease.

The usual scar of small-pox inoculation was perfectly evident on the arm.

On Thursday, June 20th, 1811, Miss Booth was seized with fever, distinguished by vomiting, violent head-ache, and pains in the back and loins.

The symptoms continued till Saturday, June 22d, in the evening of which day, some pustules came out on the forehead and scalp.

Sunday, June 23d, a more complete eruption appeared on the face and neck, and she was relieved from the violence of the fever. The vomiting however continued, the throat became very sore, and a salivation began.

Monday, June 24th, the eruption extended itself on the body, the fever was still more abated, but the salivation, forebears of the throat, and vomiting, were urgent symptoms.

Tuesday, June 25th, the fourth day of the eruption, the salivation and retching continued, with forebears of the throat.

Wednesday, June 26th, fifth day of the eruption, pustules were noticed on the lower extremities, those on the face advanced, the eyes were swelled; and the number of pustules on the head and face was about two dozen.

Thursday, June 27th, sixth day of the eruption, the pustules on the face began to turn. She still suffered from sore throat and salivation.

Friday, June 28th, the pustules on the face turned, those on the lower extremities were few in number but well filled, and not yet changed.

Saturday, June 29th, eighth day of the eruption, the only complained of sickness. After this day, the pustules turned and dried on the lower extremities, and no complaint remained.

Dr. Bree considered this as a mild case of diffinent small-pox.

On Sunday, May 26th, 1811, the Hon. Robert Grovenor, who was recovering from the hooping-cough, became much indisposed and threw up his dinner. Fever followed, and he complained moit particularly of exacerbating pain in his back.

He dwelt on this symptom until Thursday, when he became delirious, and there were observed on his face about twenty pustules.

He had been vaccinated by Dr. Jenner, in his infancy, about ten years ago, and the mark left in his arm indicated a perfect disease.

On Friday morning, the eruption had not increased materially in point of number, but the appearance of the spots and the previous symptoms, suggested strongly a suspicion that the diforder was the small-pox.

Sir H. Halford had occasion to go to Windsor in the afternoon of Friday, and did not see Mr. Robert Grovenor until the Monday following (June 2d,) but he learned from Sir W. Farquhar, who attended him most carefully during Sir Henry's absence, and subsequebtly, that the eruption had increafed prodigiously in the course of Friday; that on the evening of that day, Mr. Robert Grovenor began to make bloody water, and that he continued to do so until Monday morning.

On the tenth day of the disease, the pustules began to dry upon the face, which was swollen to a considerable degree, but not to the extent of closing his eyes, and was attended by a salivation which lasted several days. Petechiae had occurred in the intertices of several of the spots, particularly on the limbs, and there was that particular smell from the whole frame which is remarkable in bad cases of contagious small-pox.

It was obvious that the first symptoms of which Mr. Grovenor complained, were such as indicated a violent difeafe about to follow, and Sir Henry concedes that he entertained a moft unfavourable opinion of the issue of such a malady, when it was fully formed; having never seen an
VACCINATION.

influence of recovery under so heavy an eruption attended by such circumstances. It seemed, however, that the latter stages of the disease were passed through more rapidly in this case than usual, and it may be a question whether this extraordinary circumstance, as well as the ultimate recovery of Mr. Grofvenor, were not influenced by previous vaccination.

The Board of the National Vaccine Establishment are of opinion, that the case of the Hon. Robert Grofvenor was a case of confluent small-pox: that the attack and progress of the disorder were attended by symptoms which almost invariably announce a fatal termination. But they observe, that the swelling of the face, which is generally so excessive as to close the eyes, and is considered as a favourable symptom, was lighter than usual; that on the tenth day the pustules began to dry upon the face, and that from that time the disease passed with unusual rapidity through the period when life is generally esteemed to be in the greatest hazard.

Those who are acquainted with the nature of the confluent small-pox, are aware that this peculiarity cannot be attributed to the effect of medical treatment.

In most cases of small-pox which have succeeded to vaccination, the pustules have been observed to dry more rapidly, and the disorder has concluded at an earlier period than usual.

If allowance be made for the relative periods in which the confluent and distinct small-pox complete their course, the rapid progress towards recovery through the latter stage of confluent small-pox, as exhibited in the case of Mr. Grofvenor, may be compared with the rapid desiccation of the pustules in the distinct and peculiarly mild form of the disorder which is considered as small-pox modified by vaccination. Both forms of the disorder proceed in the usual course, the one attended with violent, the other with mild symptoms, till they arrive near to the height, when they appear to receive a check, and the recovery is unusually rapid.

From this correspondence of circumstances, the Board are induced to infer, that in the case of Mr. Grofvenor, which has been more violent than any yet submitted to them, the progress of the disease, through its latter stage, and the consequent abatement of symptoms, were influenced by an anti-variolous effect produced upon the constitution by the vaccine process.

The occurrence of small-pox after vaccination, has been foreseen and pointed out in the report on vaccination made to parliament, by the College of Physicians, in the year 1807, to which the Board are defirous of calling the attention of the public; in which it is stated, that "The security derived from vaccination against the small-pox, if not absolutely perfect, is as nearly so as can perhaps be expected from any human discovery; for amongst several hundred thousand cafes, with the results of which the College have been made acquainted, the number of alleged failures has been surprisingly small; so much so, as to form certainly no reasonable objection to the general adoption of vaccination; for it appears that there are not nearly so many failures in a given number of vaccinated persons, as there are deaths in an equal number of persons inoculated for the small-pox. Nothing can more clearly demonstrate the superiority of vaccination over the inoculation of the small-pox than this consideration; and it is a most important fact, which has been confirmed in the course of this enquiry, that in almost every cafe in which the small-pox has succeded vaccination, whether by inoculation, or by casual infection, the disease has varied much from its ordinary course; it has neither been the same in violence, nor in the duration of its symptoms; but has, with very few exceptions, been remarkably mild, as if the small-pox had been deprived, by the previous vaccine disease, of its usual malignity." Report of the College of Physicians, p. 4.

The peculiarities of certain convulsions with regard to eruptive fevers, form a curious subject of medical history. Some individuals have been more than once affected with scarlet fever and measles; others have been through life exposed to the contagion of these diseases without effect; many have resisted the inoculation and contagion of small-pox for several years, and have afterwards become susceptible of the disorder, and some have been twice affected with small-pox.

Among such infinite varieties of temperament, it will not appear extraordinary, that vaccination, though so generally useful, should sometimes fail of rendering the human constitution unussceptible of small-pox; especially since it has been found that in several instances small-pox has occurred to individuals over whom the small-pox inoculation had appeared to have produced its full influence. Three instances of this kind have taken place within the last month; and, in another instance, the natural small-pox has occurred a second time. See Report of the National Vaccine Establishment, July 1811.

It has been imagined by some, that although the human constitution is apparently shielded from the action of small-pox by having undergone the cow-pox, yet that this security may not be permanent; but that, at the end of a certain period of time, the person will again become susceptible of small-pox. This objection, however, must now have little weight; for Dr. Jenner himself inoculated with the virus of small-pox, persons who had been affected with the cow-pox twenty-five, twenty-seven, thirty-one, and thirty-three years before; but who had never been infected with the small-pox, and these he found completely refitted this disease.

For further evidence and reasoning on this point, see Fer- mor's Reflections on the Cow-pox; Edin. Rev. No. XVII; and Bryce's Practical Obs. on the Cow-pox.

Experience has proved that, in certain instances, the cow-pox virus has merely a local action, and such cases have been mistaken for the regular constitutional affection; a thing very likely to happen, when it is remembered that the general ailment of the system is seldom marked by any very strong symptoms; and that, in the cases alluded to, the local appearances would pursue a regular progress. Yet, in these circumstances, the patient is left unprotected from an attack of small-pox. As Mr. Bryce has pointed out, therefore, a certain set of the constitution being really affected in every inoculation of cow-pox must be an important differentia. Indeed, until there be demonstrated and generally known some unequivocal mark of a constitutional affection, which does constantly occur during the course of cow-pox, when effectual, and which may be as easily distinguished as the fever and eruption consequent to the inoculation for small-pox, this new inoculation ought never to be performed, except by persons well acquainted with every appearance of the ailment. For, as much as it is more difficult to distinguish between the cow-pox and some other affections, and also clearly to ascertain the presence of a constitutional affection, than to form a similar judgment in the inoculated small-pox, the more does the cow-pox inoculation require attention to every symptom which may occur during its progress, in order that mankind may reap every advantage which has been promised from the general adoption of cow-pox as a preventive of small-pox.

Mr. Bryce has endeavored to discover a criterion of the patient...
patient being constitutionally affected with the cow-pox, and
the following observations upon this important subject merit
particular attention. "I recollected (says he) some experi-
ments which had been made with regard to the inoculation of
small-pox. It was found, that if the same person was ino-
culated every day, until the fever induced by the first ino-
culation supervened, all the other punctures quickly advanced
in their progress; and that, in the course of a day from the
time the fever or general affection began, even that puncture
which had been last made, perhaps only twenty-four hours be-
fore, equalled in maturity the one first made, perhaps eight
or nine days before, and from which the fever had arisen.

"In this case, it appears to me evident, and I think it must
be admitted by every person, that even had no other pustules
appeared on the body but those occasioned by the repeated
inoculations; nay, had there even been no fever observed in
consequence of the inoculation; yet as the pustule occa-
ioned by the last puncture had been suddenly accelerated in
its progress to maturation, at the time the general or con-
stitutional affection should have appeared; this alone was a su-
fficient proof of the presence of the various action in the
syringe.

"Judging again from analogy, I expected that the same
thing, which thus happened in the small-pox inoculation,
might also take place in that for the cow-pox; and the unex-
pected appearance of one or two vehicles upon children that
I had inoculated, which vehicles were quite characteristic of
the ailment, and the appearance of which I could only ac-
count for from a second and accidental inoculation during
the course of the disease, strengthened my hopes. And, cer-
cainly, if we find in cow-pox, where the inflamed and
hard erupcion does not take place, a leaf in the regular
course of that affection, until the end of the seventh, or
beginning of the eighth day from inoculation, that a se-
cond inoculation, performed, for example, at the end of the
fifth, or beginning of the sixth day, is so much accelerated
in its progress, about the time the general affection of the
system usually takes place, as to have an areola formed within
a few hours, or very shortly after the first, and that this
areola increases with the first, and again fades at nearly the
same time, we must be struck with the similarity, and be
forcibly led to draw the same conclusions in this case as in the
former, respecting the small-pox, viz. that although the
inoculated affection had appeared very slight, and no fever
had been observed, yet that a certain action had been ex-
cited in the constitution. That this was the true constitu-
tional affection of cow-pox, may be judged by the acceler-
ation of the second vehicle to a state of maturity five days be-
fore this could have happened, had there been no concomit-
ant general action, or change in the system."

Mr. Bryce next details a series of experiments, which
tend to prove, that if, during the regular progress of cow-
pox, a second inoculation be performed a certain number of
days after the first, the affection produced by this second
inoculation will be accelerated in its progress so as to arrive
at maturity, and again fade at nearly the same time as the
affection arising from the first inoculation; and that this
will take place, although the constitutional affection be so
light as otherwise to pass unnoticed.

From several examples related by Mr. Bryce, and a great
many other cases, in which the second inoculation was per-
formed at different periods of the primary affection, it is
concluded, that the most proper time for performing the
second inoculation, is about the end of the fifth, or begin-
ning of the sixth day, from the first inoculation; reckoning
each day to confit of twenty-four hours. Thus, if the first
inoculation be performed on Monday, at the same
hour, at which time the fifth day is considered to be finished,
and the sixth day to begin. If the second inoculation be
delayed beyond the fifth day, the affection produced by it
will be very indistinct, and of short duration; and if per-
formed at an earlier period than the fifth day, the contrast
between the progress of the two affections, with regard to
duration, will not be so great as may be thought neces-
Sary.

"These observations, however, (says Mr. Bryce,) are ap-
licable to those cafes only, in which the first inoculation
advances by a perfectly regular course, and in which the
areola begins to form about the end of the seventh, or begin-
ing of the eighth day from inoculation; and I think it
probable that the second inoculation is from certain causes accelerated or re-
tarded one or two days, as frequently happens, then the
second inoculation should be performed at a more early or
late period accordingly.

"In short, my observations on this point lead me to con-
clude, that in order to obtain the proposed criterion in the
greatest perfection, the second inoculation should be per-
formed between thirty-six and forty-eight hours before the
areola of the first inoculation begins to appear. This is
necessary in order that the secondary affection may have
proceeded some length, and that a small vehicle, containing
virus, may have been formed by it, before the constitutional
action from the first inoculation begins, otherwise no areola,
but merely a slight degree of hardness will take place from
the second puncture.

"As, on the one hand, the acceleration of the second
inoculation in the manner above-mentioned, is to be re-
garded as a certain mark of a constitutional affection in
cow-pox, fo, on the other, if it shall be found that no such
acceleration takes place, but that the second inoculation
proceeds by a slow progress through all the stages, and has
the duration of a primary affection, it is to be concluded
that no constitutional action has taken place from the first
infestation of the virus; and when this is the case, the second
inoculation must be regarded as a primary affection, and a
third puncture be made according to the plan laid down for
conducting the second inoculation; and thus we may go on
until the proper test be obtained, or until we be satisfied
that the constitution completely refits the affection of cow-
pox." See Bryce's Practical Observations on the Inocula-
tion of Cow-pox, edit. 2.

Many other particulars relating to the subject of vaccina-
 tion will be found in another place (see Cow-pox), and we
shall therefore merely add, that the new practice is on every
account deserving of the confidence and encouragement of
the public. The cow-pox is greatly milder than the small-
pox, even under the most approved mode of treatment;
being never attended with danger, seldom with sicknesses,
and never producing pustules generally over the body, nor
indeed any disfiguration of the skin, except at the part
where the virus has been truly infected by the inoculator.
The small-pox is one of the most contagious diseases to
which the human race is subject; and, when propagated in
this way, it is one of the most fatal. On the other hand,
the cow-pox is not at all contagious, and can only be com-
municated by the injection of the vaccine virus to the
part affected, as happens in the accidental inoculation of the
hands of milkers, and the ordinary practice of vaccination.

Many hundreds of thousands have now been vaccinated in
these kingdoms, and yet there is not on record a single une-
quivocal instance of the cow-pox having proved fatal.
Corresponding agreeable accounts are also received from
every part of the civilized world. The weight which this
consideration ought to have may be well conceived, when it
VACCINIUM.

is remembered, that in Great Britain and Ireland alone, the yearly mortality arising from the small-pox used to be estimated at about 45,000 perons. In the Russian empire, and other cold countries, the ravages of the small-pox were far more dreadful, and this contagion sometimes broke out in such regions with a degree of fury far exceeding any thing ever heard of the plague itself. See INOCULATION.

VACCINIUM, the new scientific name of the cow-pox, and which is now adopted by all the latest and best medical writers. See COW-POX, and VACCINATION.

VACCINIUM, in Botany, an ancient Latin name, whether of a flower or a berry has always been a point in dispute among critics, as well as the etymology of the word. Some conceive it to have been derived from the Greek λαγισμος, and therefore to be either precifically synonymous with the Latin Hyacinthus, or at least to belong to something agreeing with that plant in colour. The line of Virgil,

"Alba ligustra cadunt, vaccinia nigra luguntur," has afforded scope for the commentators, being equally obscure, whether we suppose ligustra to mean the flowers of the privet, and vaccinia its black berries, (which, by the bye, are not gathered by any body,) or whether, as is the most general opinion, the latter word may express our Bilberry, or any other black or dark berry in general use. We have already observed, in its proper place, that our Privet is not the original Ligustrum; see that fact. Linnaeus however declares, very reasonably, that no future contentions or discoveries of the learned shall unfetle his name of Vaccinium, as applied to the Bilberry or Whortleberry tribe, for which this generic appellation is now universally adopted.


Eries, Jull.

Gen. Ch. Cal. Perianth superior, of one leaf, small, permanent. Cor. of one petal, bell-shaped, more or less deeply four-leaf; the segments revolute. Stam. Filaments eight, simple, inserted into the receptacle; anthers two-horned, burbling at the funnits, and sometimes furnished at the back with two spreading spurs, or bristles. Pist. Gern ridnith, inferior; Ryle simple, longer than the filaments; stigma obtuse. Peric. in berry globose, depressed at the top, of four seeds, few, small. Eff. Ch. Corolla of one petal. Stamens inserted into the receptacle. Anthers with two terminal pores. Berry inferior, of four cells, with several seeds.

Obf. Linnaeus remarks, that "one fifth is often added to every part of the fruitification;" hence Mr. Pursh has removed Vaccinium to the clas Decandria. The Swedish naturalist also mentions, that "the calyx, four-leaf in many of the species, is entire in V. Myrtillus; and that almost the whole of the fierce corolla of V. Oxyccous is rolled back to its base." The latter character caused Tournefort, who relied so much on the corolla, to separate Oxyccous as a genus, in which Pursh, with one or two other botanists, have followed him. But Tournefort erroneously supposed this flower to have four distinct petals, a mistake corrected by Linnaeus; see Fl. Linn. n. 145, where sufficient reasons appear for considering the plant as a Vaccinium. The character of the tubular deeply divided anthers in Oxyccous, superadded by Mr. Pursh, tends only to deceive, being found in several indubitable species of Vaccinium.

The genus before us, mostly confined to Europe and North America, is peculiarly abundant in the latter country. It is very remarkable that, as no Erica occurs in America, so no Vaccinium has been found at the Cape of Good Hope. These genera, similar in many of their flowers, differ no less widely in the situation of their germen, and texture of their fruits, than in the infection and habit of their foliage, which in Vaccinium is scattered, dilated, generally membranous and deciduous; always indeed simple and undivided; but totally unlike the narrow, whorled, evergreen leaves of Erica. The flowers in Vaccinium are copious, fleshed, either solitary, simply racemose, or tufted, drooping, inodoruous, generally very elegant, tinted with various shades of red or pink, never blue, scarcely yellowish. Berries black, purple, blue, or red, generally eatable, though not pleasant, nor always wholesome, in a crude state. Stem hirsute, bushy, of humble stature. Stipulas none.

The species of Vaccinium were ill understood by Linnaeus, but we hope to trace the origin of many of his errors, which have never been cleared up, and have led all following authors astray. Murray defines but fifteen species in the fourteenth edition of Syll. V. Wildenow has twenty-seven, of which five are European, three natives of Japan, one of Otaheite, one of Jamaica, the rest North American. Pursh has twenty-five species of Vaccinium, besides three of Oxycoccus, from North America only. In reviewing the whole of the genus, we find something to add, though we have many species that are dubious. We are obliged to follow the distribution of Linnaeus, by which the evergreen species are separated from those which are deciduous, though some uncertainty must always attend that character, respecting species known from dried specimens only.

Sec. 1. Leaves deciduous.

1. V. Myrtillus. Common Bilberry, or Bleaberry. Linn. Sp. Pl. 458. Willd. n. 1. Fl. Brit. n. 1. Engl. Bot. t. 456. Fl. Dan. t. 974. (Vaccinia nigra; Ger. Em. 1415. Myrtillus; Math. Valgr. v. 1. 210. Camer. Epit. 153.)—Stalks solitary, fingle-flowered. Leaves deciduous, ferrated, ovate, smooth. Stem acutely angular. Calyx finely divided. Native of heaths, stony moors, and mountainous woods, throughout most parts of Europe, especially the more northern, flowering in May. Dr. Sibthorpe gathered it also on the Bithynian Olympus. The fruit is woody. Stem from six to eight inches to two feet high, erect, bushy, smooth; the young green branches leafy, a little zigzag, furnished with very acute dilated angles. Leaves about an inch long, on short footstalls, pubescent, veiny, rather acute, copiously ferrated; paler beneath. Flowers pendulous, on simple, naked, smooth, axillary stalks. Calyx dilated, angular, seldom so much lobed as in Engl. Bot. Corolla globose, generally five-leaf, of a very delicate waxly pink hue. Anthers horned. Germen glaucous. Berry the size of a currant, bluish-black, acid, eaten in tarts, or with cream, in the north and west of England. In the eastern counties this plant is not plentiful. Its fruit is sometimes sent into Norfolk from Devonshire. Mr. Menzies brought, from the west coast of North America, what we can scarcely make more than a gigantic variety of this species, seven or eight feet high, larger in every part, with less distinctly ferrated leaves.

2. V. ovulifolium. Oval-leaved Bilberry.—Stalks solitary, fingle-flowered. Leaves deciduous, elliptical, oblong, pointed, entire, smooth, strongly veined beneath. Stem angular. Calyx finely divided.—Brought by Mr. Menzies from the west coast of North America. A forb ten or twelve feet high, whose smooth branches are less acutely angular than in the foregoing, and whose leaves are very essentially differing.
being either perfectly elliptical, or slightly ovate, blunt, and quite entire, about an inch and a half long, copiously reticulated with fine veins, quite smooth on both sides; rather paler beneath. Flowers solitary at the base of each tuft of budding leaves, drooping, each accompanied, at the base of its stalk, by a large ovate, acute, coloured bractea. The flowers seem to agree with those of V. Myrtillus in size, colour, and structure, except that the corolla is more ovate. The berries are black, crowned with the cup-shaped, slightly four-lobed, calyx.

3. V. parviflorum. Small-flowered Red Bilberry.—Stalks solitary, single-flowered. Leaves deciduous, elliptical, ob- two, pointed, entire, smooth; glaucous, and slightly veiny, beneath. Stem acutely angular. Calyx scarcely divided. Stalk of the fruit club-shaped.—Gathered by Mr. Menzies on the west coast of North America. The shrubby folk is eight or ten feet high, with smooth zigzag branches, whose angles are as much dilated and prominent as in our first species. The leaves most agree with those of **ovatifolium** in shape, but are at their full growth scarcely a quarter fo long, and each tipped with a small point; their under side rather glaucous, with less copious, and far less prominent, veiny reticulations. We have seen no flowers. The berries are red and make excellent tarts. They appear to be smaller than the half, crowned with a similar calyx, but their stalk is shorter, measuring scarcely half an inch, more drooping, and very remarkably swelling upward, so as to be quite club-shaped, contracted at the summit, of which the foregoing flesws but flight traces. There is no doubt of these two species being very different from each other, as well as from all hitherto described by authors.

5. V. birtum. Hairy Japan Whortle-berry. Thunb. Jap. 155. Wild. n. 3.—Stalks solitary, single-flowered. Leaves deciduous, ovate, ferrated, hairy all over as well as the young branches.—Gathered on hills between Misco and Jedo in Japan, by professor Thunberg, one of whose specimens is before us. A taller shrub than our **Myrtillus**, flowering in April. The branches are round. Leaves like that species in size and shape, but covered with soft hairs; their under side rather pale. **Flowers** drooping, on very short stalks.

6. V. pulgigum. Great Bilberry. Linn. Sp. Pl. 459. Wild. n. 5. Fl. Brit. n. 2. Engl. Bot. t. 581. Fl. Dan. t. 231. Pursh n. 15. (Vitis idea magna quibusdum, five Myrtillus grandis; Bauh. Hist. v. 1. 518. Rauy Syn. 457. V. idea folis subrotundis major; Ger. Em. 1416.)—Stalks somewhat aggregate, single-flowered. Leaves deciduous, ovate, entire, smooth. Branches round.—Native of marily mountainous heaths, and alpine bogs, in Sweden, Germany, Switzerland, Savoy, Scotland, and the north of England; as well as in the more northern parts of America, and on its west coast; flowering in April or May, and ripening the berries, which are elastic, but not either very grateful or wholesome, in August. Taller than the Common Bilberry, and of a more glaucous hue. Leaves smooth and even above; veiny and glaucous at the back; quite entire, by which this species is readily distin-

VACCINIUM.

guished from all that in other respects bear any resemblance to it. **Flowers** drooping, flesh-coloured, mostly four-cleft, with eight long-horned stamens. **Calyx** short and blunt. **Berry** large, juicy, black, with a glaucous hue. **Seeds** finely flatted. A variety with slightly pointed leaves, was published by an apothecary at Berne, in 1787, as *V. muscronata*, an imaginary species, of which we shall speak at the end of our eighth.

7. V. calycinum. Large-cupped Whortle-berry.—Stalks solitary, single-flowered. Leaves deciduous, ovate, ferrated, smooth, with downy ribs. Branches angular. Segments of the calyx deep, ovate.—Gathered by Mr. Menzies, in woods, upon lofty mountains, in the Sandwich islands. This appears to be of a much taller stature than the preceding. The leaves at the flowering feason are an inch and a quarter long, near an inch wide, plant, with fine, copious, pointed, incurved ferratures, and a small, blunt, terminal point; their under side pale. **Flowers** about the lower part of each young leafy branch, axillary, drooping, each on a simple, naked, slightly downy calyx, an inch long. **Calyx** in five, rather unequal, deep, ovate, entire, blutfith, smooth, finely reticulated segments, exceeding the germen in length. **Corolla** oblong, with five angles, enclosing the anthers and style. Of the fruit we have no knowledge.

8. V. flammeum. Green-wooded Whortle-berry. Linn. Sp. Pl. 498. Wild. n. 4. Ait. n. 5. Pursh n. 1. Andr. Repof. t. 263. (V. album; Pursh n. 2, excluding the synonym of Wildenow. Arbuscula americana baccifera, floribunda cornuta, &c.; Pl. Mag. 32. Phyt. t. 459. f. 3.—Clusters downy, with oval bracteeae as long as the flowers. Anthers twice as long as the spreading bell-shaped corolla. Leaves elliptical, acute, entire; glaucous and rather downy beneath.—Common in dry woods, from New England to Florida, flowering in May and June. The trunk is firm, about two feet high, with numerous green branches, downy when young. Leaves an inch and a half or two inches long at the flowering feason, on very short downy stalks. **Flowers** copious, white, with remarkably conspicuous, tawny, linear anthers, spurred near the base. **Corolla** broader than long. **Berries** greenish, or white, called Deer-berries. Analogy leads us to consider the influence of this species as racemose. Indeed the bractae, though resembling the leaves in every respect but size, are usually but one-fourth as large, and sometimes not a quarter of an inch in length. Mr. Pursh's album can fearrowly, by his definition or Andrew's figure, be marked even as a variety, though he says the flowers are larger, and berries more globose, than in the common *flammeum*. That his plant was not the Linnaean album, appears from the original specimen, sent by Kalm to Linnaeus, under the denomination of "3. **Vaccinium** with white berries," but which proves *Xylosteum ciliatum* 8, Pursh 161. No wonder that no subsequent investigator could ever ascertain *V. album*! We must notice another error of Linnaeus, to prevent mistake. He cites under *V. flammeum* the proper figure of Plukent, but with a wrong synonym or definition. Here also it falls to our lot to correct our great master respecting another of Kalm's plants, *V. muscronata*, which has ever remained as unintelligible as the album. His described specimen is certainly one of the *Meaphus* or *Pyrus* tribe, but not in a condition for us precisely to ascertain the species, nor can we refer it to any thing in Mr. Pursh's work.

9. V. arborum. Shining-leaved Tree Whortle-berry. Marth. in Michaux Borcal.-Amer. v. 1. 230. Pursh n. 5. (V. diffusum; Ait. n. 5. Wild. n. 8.)—Stalks axillary and solitary, or terminal and racemose, naked. Leaves ovate, acute, with flight glandular ferratures; polished above;
VACCINiUM.

above; rather downy beneath. Corolla bell-shaped, acute. Stamens the length of its tube. In dry woods, on the rocky banks of rivers, from North Carolina to Florida, flowering in May and June. A large fbrub, sometimes twenty feet high, very elegant. Flowers white, tinged with red, BDX. globular, black, almost dry, downy. Our numerous wld as well as cultivated specimens, compared with the Bankian herbarium, and answering to every particular of the published accounts of this plant, have no doubt of its identity, and therefore we do not repel to adopt Michaux's name, in preference to the older one, diff-fusum, the latter being founded in some mistake. The branches are round, downy when young. Leaves peculiarly shining, and strongly reticulated with veins. Flower-stalks an inch long, angular, marked with two or three glands; some of them auxiliary, solitary, from several of the lower leaves of each branch; others forming a nearly leafless clufier, at the end of the fame branch. In one instance we find two fuch clufiers, with a small leafy breace, or two in the middle. Notwithstanding a short lateral branch, whose leaves are fallen. This species, as Nature has drawn no precise line of demarcation between the racemoe and the solitary inflorescence of this genus, which in many species, by the ambiguous nature of their floral leaves, run into each other.

10. V. augiffifolium. Narrow-leaved Whortle-berry, or Bluet. Ait. n. 6. Wild. n. 9. (V. myrtilleoides; Michaux Boreol.-Amer. v. 1. 234. Purf. n. 16.)—Stalks scattered, mostly solitary, single-flowered, naked. Leaves lanceolate, nearly entire; downy at the ribs and margin. In Canada, about Hudson's Bay and Labrador, flowering in April and May. Berries large, bluefih-black, known by the name of Bluets. Purf. Michaux fays this species has the habit of V. Myrtillus; its leaves being membranous, of a narrow lanceolate form. We have seen no specimens. Dr. Solander's original name, in Hort. Kew. and Willdenow, appears preferable to that of Michaux adopted by Purf.

11. V. dumofum. Bufy Whortle-berry. Ait. n. 7. Purf. n. 4. Curt. Mag. t. 1166. Andr. Repof. t. 112. (V. brodofum; Michaux Boreol.-Amer. v. 1. 230. V. hirtelhum; Ait. n. 12, according to Purf. from a conparifon with the Bankian herbarium.)—Clufiers downy, with oval breaces; partial stalks with two lanceolate ones. Leaves obovate, pointed, entire, downy and vifcid. Germs hairy. Corolla bell-shaped, obtufe, longer than the ilamens.—In dry fandy woods, particularly pine forests, from New Jersey to Florida, flowering in June and July. A low bufy fbrub, with round branches. Leaves an inch and a half long, varying in breadth, reticulated with veins; paler beneath, but not at all glaucous; covered all over, especially when young, with short vifcid pubefeence, and glaucous dots, as are also the branches, flals, and breaces. Berries grow along the flowers, and leafy, like thofe of V. tla mineum, n. 8; but each partial flower-flalk bears also, about its middle, two smaller, lanceolate, sometimes coloured, partial breaces. The germs are particularly fhaggy. Segments of the calyx deep, ovate, fringed, co- coloured. Corolla white, tinged with pink, rather large. Berries black, globular. A comparifon of the two figures above cited will shew the ambiguous nature of the inflores- rence, and account for this species having been described twice in the accurate publication of Mr. Aiton.


15. V. foefatum; Ait. n. 8. Willd. n. 13. Purf. n. 11. (V. lormofum; Andr. Repof. t. 97.)

Flowering branches nearly leafless. Clufiers corymbofe, drooping. Breace membranous, shorter than the downy flower-flals. Leaves elliptical, acute, minutely ferrated, smooth, with downy ribs.—Native of swamps and wet woods, from Canada to Carolina and Georgia, flowering in May and June. A tall fbrub, sometimes seven or eight feet high, with numerous roughifh round branches; fome fhort and angular and downy when young. Leaves for the moft part round the flowers, an inch and a half or two ifches long, elliptic-oblong, acute at each end, various in breadth, veiny, but not ftrikingly reticulated; very minutely, more or less evidently, ferratet; tipped with a glandular point; smooth, except the rib and veins, which are finely hairy or downy, especially at an early period. Flowefflals fhort and broad, downy. Clufiers from branches of the preceding year, feldom accompanied with leaves, alternate, about an inch long, and rather compact, often corymbofe, of fix or eight drooping flowers, whose partial flals are fimply downy, with short curved hairs, and furred at the base with membranous, reddifh, smooth, fringed, decifedous breaces, varying in length and acutenefs, but mollifly much shorter than their correffponding flals. Segments of the calyx broad and shawf. Corolla white or reddifh, cylindrical, somewhat angular, contracted at the mouth, with five fhowy, spreading, marginal segments. Stamens ten, downy. Anthers within the corolla, having a double pouch at the base, but no fpur. Style foftimes, but not always, a little prominent. Berries black, infipid. Some apology may feem neceffary for our thus uniting four reputed fpecies, a measure of which Michaux firf, in part, fuggfed the propriety. With repect to the corymbifum and amanum, original fpecies of each, and the total want of any diftinctive character in authors, will abundantly justify us. The calyx fpreads equally in both. Indeed the former being always unknown, by name, in our gardens, and its specific character in Linnaeus being infufficient, if not incorrect, that fpecies could be aecertained by his herbarium only, which in this instance was neglected, and the fame plant appeared in the firft edition of Hort. Kew. under the name of amanum, acquired in England. It had here once been called elevatum, as appears by a fpecimen given to the younger Linnaeus. Some gardeners subfequently transferred flaminicum the name of amanum, and hence perhaps when the latter appeared after from America, it received the new appellations of virgatum and fusfeatum, perpetuated likewife in Hort. Kew., between the original specific characters of which there can be little discovered that is effential. In Mr. Andrews's plate of virgatum indeed the clufiers are accompanied by leaves, of which we have been no example in corymbifum, and the flowers are smaller than usual in this latter; but Mr. Purf. under the name of amanum, allows that it "has a number of varieties in size, shape, and colour." The elegant fusfeatum, as figured by Mr. Andrews, evidently betrays a close affinity

10
to *cosymphum*, colour being avowedly of no importance, and the erect *calyx* we have good reason to mistrust. Having formed our opinion from the beet materials in our power, we leave its refutation or confirmation to those who may have opportunities of future inquiry, without any intentional disrespect to the great authorities from which we differ.

14. *V. breitatum*. Bracteate Japan Whortle-berry. Thunb. Jap. 156. Willd. n. 11. — Clusters axillary, longer than the smooth, acute, ferrated leaves. Bracteas lanceolate, ferrated ; partial flasks with two smallerawl-shaped ones. — Gathered by Thunberg in the island of Niphon, Japan, flowering in June. The branches are always smooth, leafy, slightly angular when young. *Leaves* eliptic-lanceolate, acute at each end, an inch and a half long, on short flanks, sharply but not deeply ferrated, very smooth on both sides; paler, and moist reticulated, beneath. We should suspect them to be evergreen, as they accompany the flowers, on what seem to be last year's shoots; but having no particular information, we, like Willdenow, place this species among those to which it appears to be naturally related. *Clufters* two or three inches long, axillary, solitary, simple, slender, many-flowered, very smooth. *Partial flasks* short, drooping, turned all one way, each having at its base a lanceolate, acute, smooth *bractea*, mostly twice its own length, and about the middle two others of a very small size. Segments of the *calyx* short, acute, spreading. Corolla cylindrical, white. Nothing is known of the fruit. The Japanese call this plant *Kj Fuji*.

15. *V. cilatum*. Hairy-ribbed Japan Whortle-berry. Thunb. Jap. 156. Willd. n. 12. — Clusters axillary, longer than the ovate, brilly, nearly entire leaves. Bracteas lanceolate, smooth. — Native of Japan, where it is called *Sasjebu*. The stem is smooth, ash-coloured, with upright villous branches. *Leaves* ovate, acute, unequal, from one to two inches long, ribbed; the ribs bifid all over. Flowers red, turned one way, in terminal, solitary, bracteate *clufters*, as long as the finger. Bracteas about one-third of an inch in length. *Calyx* very short. Thunberg. We formerly examined this species in professor Van Royen's herbarium, but are not possessed of a specimen. It must be presumed that by "*folia integra" is not meant undivided leaves, the true sense of that expression; because no *Vaccinium* has any other. The learned author evidently contrives this phrase with the *folia ferrata* of the preceding species, and means that the leaves are nearly entire; in contradistinction to *intermissa*.


Michaux describes this shrub as having the aspect of *Myrica Gale*, with slightly downy branches. *Leaves* veiny. The *flower-flasks* shorter than the flowers, burst from a bud, composed of numerous crowded scales, but become naked and corymbose as the fruit advances. We trust that we need not labour under the necessity of precisely retaining the original specific name.


18. *V. ligustrinum*. Privet-leaved Whortle-berry. Mi-


**Vaccinium.**
VACCINIUM.

Lamarck and their fpecies twice mollently and their rub. I thofe long-lical, orientalis lenberg, beneath, broad, before 42. of hack. Beneath, branches, Calyx green. Berries large, blueifh smooth, nearly ferrated, Calyx five-lobed. Native of the loftieft parts of the ifland of Madeira, where it forms impenetrable thickets, flowering in July, according to Mr. Mallon, who fent a fpecimen to the younger Linneus in 1777. This fo prefhly agrees with Mr. Edwards's figure in Curtis's Magazine, drawn from a plant obtained from mount Caucafus, by Mr. Lock-who, that we cannot doubt its being what Pallas found in the alpine beechnets of that neighbourhood. The younger Linneus obtained a fpecimen of the fame, from the English gardens; and we received one in flower, from the preift duke of Marlborough's garden, at White Knight's, in June 1806. So far therefore our cultivated plant is identified, nor can any thing be more clearly diflinguished from the true V. Arctofothaphus. The leaves, well compared by Pallas to thofe of the Bird-cherry, are of a more firm rigid texture, and not half fo large as the former; they are more rounded at the bafe; their ferratures, though fmall, more evident; underfurface quite smooth, except at the very bafe about the mid-rib, which is also a little hairy on the upper fide. Footstalks longer. Calyx more decidedly five-lobed, though it appears to vary in the depth of its fegments. Corolla larger, pale green, with a purple tinge; sometimes it seems to be all over purple externally. Partial or internal bracteas rather broader. German very glaucous. The filaments differ effentially, in being flat, quite smooth at each fide, and only flightly fringed in the margin, efpecially about the top. We can difcern no spurs on the anthers, which moreover are rather thorter with refpeét to the corolla. The style is sometimes a little prominent, but not confiftantly. Pallas lays the berries are black, juicy, catabile, grateful aciety. Sometimes, though very rarely, he found the flowers four-cleft.

21. V. Arctofothaphus. Oriental Bear-berry, or Whortle- 
berry. Linn. Sp. Pl. 500. Wild. n. 21. (Vitis idea orientalis maxima, cerai folio, flore variagato; Tourn. Cor. 42. Voyage v. 2. 98, with a figure.)—Clufers lateral. Bracteas all at the fide of the partial falks. Leaves elliptical, acute, minutely ferrated; hairy beneath. Stamens as long as the bell-shaped corolla, with very hairy filaments. Calyx flihtly five-lobed.—Gathered on the caft of the Black tea, by Tournefort, two of whose fpecimens are before us. He describes this fbrub as the height of a man, with a trunk as thick as one's arm. The young leafy branches are downy on two oppofite fides, like the foregoing, but more broadly. Footfalks extremely fhort and broad, hairy. Leaves plant, broadly elliptical, tapering at each end, two inches and a half long, and nearly one and a half broad, bright green, sometimes reddish above, and quite smooth, except the midrib, on that fide; paler beneath, and befprinkled with short prominent hairs, efpecially about the lower part of the rib; their margin furri- nipped with copious, but blunt and fllllow, ferratures. Clufers from the wood of the preceding year, below the leafy fhoots, drooping, one and a half or two inches long, somewhat hairy, composed of eight or ten pendulous flowers, of a dirty white, ftripped or fliined with purple. Bracteas feveral at the bafe of each partial flower-falk, fringed; one of them large, ovate, often balf an inch, or more, in length; the elf linear-lanceolate, much smaller, one or two in number, fcarcey more, being analogous to thofe found about the middle of the partial falks, in feveral fpecies already defcribed, though differently ufuated in the corolla bell-shaped, five lines long and four wide, with five fllllow, recurved, marginal fegment. Filaments ten, nearly half as long as the corolla, fliht, gibbous, extremely hairy at the back. Anthers longer than the filaments, yellow, fliht, smooth, and tubular above, furnished with two granulated pouches, defcending much below their infcription, at the inner fide of the filament, and with two small dorsal fpur, at the bafe of the tubes above thofe pouches. Style fhorter than the corolla. The berries were feen by Tournefort in an unripe state only. He judges this plant, with great probability, to be the arctofothaphus, or Bear-grape of Galen.

What the variety B of Linneus may be, we know not, as nothing anfwerable to his reference is to be found in Tour- 
nefort's Corollarium.

22. V. padifolium. Madeira Whortle-berry. (V. Arctof- 
lanceolate, acute, minutely ferrated, smooth on both fides, except the mid-rib. Stamens nearly as long as the bell-shaped corolla, with fliht, slightly fringed, filaments. Calyx five-lobed. Native of the loftieft parts of the ifland of Madeira, where it forms impenetrable thickets, flowering in July, according to Mr. Mallon, who fent a fpecimen to the younger Linneus in 1777. This fo prefhly agrees with Mr. Edwards's figure in Curtis's Magazine, drawn from a plant obtained from mount Caucafus, by Mr. Lock-who, that we cannot doubt its being what Pallas found in the alpine beechnets of that neighbourhood. The younger Linneus obtained a fpecimen of the fame, from the English gardens; and we received one in flower, from the preift duke of Marlborough's garden, at White Knight's, in June 1806. So far therefore our cultivated plant is identified, nor can any thing be more clearly diflinguished from the true V. Arctofothaphus. The leaves, well compared by Pallas to thofe of the Bird-cherry, are of a more firm rigid texture, and not half fo large as the former; they are more rounded at the bafe; their ferratures, though fmall, more evident; underfurface quite smooth, except at the very bafe about the mid-rib, which is also a little hairy on the upper fide. Footfalks longer. Calyx more decidedly five-lobed, though it appears to vary in the depth of its fegments. Corolla larger, pale green, with a purple tinge; sometimes it seems to be all over purple externally. Partial or internal bracteas rather broader. German very glaucous. The filaments differ effentially, in being flat, quite smooth at each fide, and only flightly fringed in the margin, efpecially about the top. We can difcern no spurs on the anthers, which moreover are rather thorter with refpeét to the corolla. The style is sometimes a little prominent, but not confiftantly. Pallas lays the berries are black, juicy, catabile, grateful aciety. Sometimes, though very rarely, he found the flowers four-cleft.
24. *V. meridionale*. Jamaica Whortle-berry. Swartz Ind. Occ. 676. Wild. n. 22. Ait. n. 17.—Clusters erect, downy. Bracteas solitary, ovate. Leaves ovate, crenate, permanent, smooth. Stem arborescent.—Native of the lofty Blue mountains in the southern part of Jamaica, flowering in February, and ripening fruit in Augult. This is from ten to thirty feet high, with a very straight smooth trunk, and hard wood. Branches straight, forking, leafy, round; downy when young. Leaves rigid, an inch or rather more in length, on short, broad, downy flarks, flat, and somewhat shining, veiny; paler beneath. Clusters solitary near the end of last year's branches, twice as long as the leaves; their partial flarks naked, except a large, solitary, ovate, smooth, coloured, deciduous bractea, at the base of each, and equal to it in length. Flowers drooping, reddish-white. Calyx in four broad, acute, permanent segments. Corolla ovate, quadrangular before expansion, contracted at the mouth, with four acute, recurved, marginal segments. Stamens eight, as long as the corolla, their filaments hairy in the middle. Dr. Swartz mistakes the tubular points of the authors for horns or spurs. Style the length of the corolla. Berry roundish, juicy, pleasantly flavoured, pale red, resembling that of *V. Vilis idea*. The flowers are very rarely five-cleft and decandrous.

25. *V. cercum*. Otaheit Whortle-berry. Forl. Prod. 28. Wild. n. 5. (Andromeda cera; Linn. Suppl. 238.)—Stalks axillary, solitary, single-flowered, with two lanceolate bracteas about the middle. Leaves roundish-ovate, ferrated, smooth, permanent. Calyx in five broad pointed segments.—Gathered by Forther in Otaheite. The branches are round, smooth, leafy; slightly downy when young. Leaves about an inch long, pointed, coriaceous, veiny, twice the length of the smooth simple flower-flarks. Corolla ovate-oblong, with five angles, and five erect small segments. Anthers, according to Linnæus, with two dorsal horns.

26. *V. Vilis idea*. Red Whortle-berry, or Cow-berry. Linn. Sp. Pl. 502. Wild. n. 24. Fl. Brit. n. 3. Engl. Bot. t. 508. Pursh n. 18. Fl. Dan. t. 140. (Vaccinia rubra; Ger. Em. 1415. Vilis idea rubra; Camer. Epit. 136.)—Clusters terminal, drooping; with ovate concave bracteas, longer than the flower-flarks. Leaves obovate, revolute, minutely toothed; dotted beneath. Corolla bell-shaped.—Native of dry barren stony woods and heaths, in the north of Europe, plentiful in Scotland, Welfordeland, Derbyshire, Wales, &c. flowering in June, and ripening fruit in August. Mr. Pursh says it occurs on rocks near the sea-coast, from Canada to New England, but the American plant is more robust than the European, with considerably larger leaves. The roots are creeping, woody. Stems ascending, in England about a span high, wary, but little branched, smooth, leafy; young branches round, downy. Leaves evergreen, somewhat like box, but darker on the upper side, smooth and shining. Flowers pale pink, four-cleft, in elegant, dense, solitary, pendulous clusters. Calyx in four deep, broad, ovate, red segments. Anthers without horns. Stigma small, feebly notched. Berries blood-red, acid, acidulous and bitter, ells pellable in tarts than either the Cranberry or Bilberry, but excellent in a rob or jelly, for colds and sore-throats, as well as to eat with roast meat, to which latter purpose this jelly is universally applied by the Swedes.


28. *V. crassifolium*. Thick-leaved Whortle-berry. Andr. Repof. t. 105. Ait. n. 19. Pursh n. 20. Curt. Mag. t. 1152.—Clusters lateral and terminal, coriaceous. Bracteas shorter than the flower-flarks. Leaves elliptical, crenate, smooth; paler and veiny beneath. Corolla bell-shaped. Stem diffuse.—Brought by Mr. Fraer from Carolina, in 1787. It flowers in May and June. A trailing evergreen species, requiring some shelter from our variable winters and springs. The leaves are not an inch long; their upper surface very smooth and even, with a little minute pubescence on the mid-rib and footflask. Flowers five-cleft, prettily variegated with pink and white, drooping, on red coriaceous flarks. Stems hairy. We have no account of the fruit.

29. *V. villosium*. Fairy Mexican Whortle-berry.—Clusters longer than the leaves. Flower-flarks large, corolla and lanceolate bracteas densely hairy. Leaves elliptical, entire, revolute, coriaceous, with a blunt point; hairy on the upper side.—Sent by Mutis to Linneaus from Mexico. The branches are round, leafy, densely hairy when young. Leaves crowded, an inch long, on thick downy footflarks; their upper side convex; under paler, veiny, scarcely hairy, except the rib. Clusters towards the ends of the younger branches, axillary, dense, drooping, nearly twice as long as the leaves, very hairy all over, the germs particularly. Bracteas coloured, internally smooth; those of the partial flarks very narrow. Calyx in five deep, lanceolate, densely fringed segments. Corolla purplish, oblong, with five hairy angles, and as many small recurved teeth. Fruit unknown, but the habit, and the inferior germs, sufficiently announce the genus.

30. *V. reticulatum*. Reticulated South-sea Whortle-berry.—Stalks axillary, solitary, single-flowered, downy. Leaves obovate, more or less ferrated, coriaceous, with a blunt point; strongly reticulated on both sides and nearly smooth. Corolla hairy.—Gathered by Mr. Menzies, in woods on high mountains, in the Sandwich islands.—The branches are leafy; when young angular and feebly downy. Leaves an inch long, remarkable for their reticulated veins, prominent on both sides; their margin somewhat revolute, strongly ferrated, but sometimes nearly entire. Flower-flarks numerous, erect, about an inch long, swelling upwards, without bracteas; reflected as the fruit advances. Calyx in four or five deep, oblong, ribbed, downy, coloured segments, at length involute. Corolla cylindrical, three as long as the calyx, purple, slightly hairy, with four or five upright blunt teeth. Style hairy, shorter than the corolla. Berry globular, depressed, nearly or quite smooth.

31. *V. dentatum*. Toothed South-sea Whortle-berry.—Stalks axillary, solitary, single-flowered, smooth. Leaves obovate, with sharp tooth-like ferratures, coriaceous, veiny, very smooth. Calyx longer than the smooth germs.—Found by Mr. Menzies, in woods on the lofty mountains of the Sandwich islands. The branches of this are angular, always smooth, like even other parts. Leaves rather longer than the leaf, more strongly and uniformly toothed, with less prominent veins. Flower-flarks naked and smooth; recurved when in fruit. Calyx in five deep, oblong, obtuse, smooth, keeled segments, longer than the germs, even after the corolla is fallen, which latter is wanting in our specimens.

VACCINIUM.

t. 480. Pursh n. 21. Ait. Epit. 376. Curt. Mag. t. 1550.—Clufters terminal, corymbose. Bracteas shorter than the flower-flalks. Leaves elliptic-obovate, acute, crenate, smooth and thinning. Corolla cylindrical. —Native of Carolina, flowering in May and June. The flon is of humble growth, either erect, as in Andrews's figure, or diffuse, as in the Botanical Magazine; the young branches downy on two opposite fides. Leaves evergreen, from an inch to an inch long, numerous, very smooth; paler and velvety beneath; on very short red footsalks. Flower-flalks, bracteas, and calyx very smooth, of a thining red or purple. Calyx in five fold, rather shallow, segments. Corolla ovate-oblong, white or pink, with five flight spreading teeth, longer than the style. This species bears some affinity to the following, as well as to crafisphium, n. 28; but differs from the latter effentially, as Mr. Pursh observes, in the fhape of its corolla; to which may be added the form and polish of its leaves, and the young branches being downy on two fides only.


36. V. obtusum. Blunt Whortle-berry. Pursh n. 25.—"Stem creeping. Leaves small, oval, rounded and blunt at each end, pointed, entire, coriaceous, smooth. Stalks axillary, solitary, fingle-flowered."—Gathered by Mr. Menzies, on the north-west coast of America; seen in the Bankfather herbarium, without flowers. Pursh.

We can find nothing, among our fpecimens from Mr. Menzies, that anwers to the characters of either of these two fpecies. Our paraisophium, n. 3, agrees in some points with the defcription of the lat, but the flon is rather arborefcent than creeping, and the leaves are certainly neither coriaceous nor evergreen.

37. V. Oxycoccus. Common Cranberry. Linn. Sp. Pl. 500. Wild. n. 25. Fl. Brit. n. 4. Engizl. Bot. t. 195. Fl. Dan. t. 80. Lamarck f. 3. (Vaccinia palustris; Ger. Em. 1419. Lob. ic. v. 2. 109. Oxycoccus; Cord. Hist. 140. 2. f. 1. Oxycoccus vulgaris; "Perf. Syn. v. 1. 419." Pursh 263.)—Corolla deeply four-fleck. Leaves ovate, entire, revolute, acute, fmoother. Stems creeping, thread-shaped. Flowers terminal.—Native of turf y mossy bogs in the mountainous parts of Europe; common in Switzerland, Russia, Scotland, Ireland, and the north of England, as well as in Lincolnshire, and the neighbouring part of Norfolk, flowering in June. Mr. Pursh speaks of it as common on the boggy mountains of North America, from Canada to Pennsylvania, flowering from May to July. Few plants are more elegant. The wiry thubby flons creep among bog-mofs, with long, branching, fibrous roots, which often appear to imbibe nourishment from the clear water alone. Branches scattered, procumbent, smooth, reddish, leafy. Leaves evergreen, flalked, from a quarter to half an inch long, coriaceous; convex and of a dark thinning green above; glaucous beneath. Flower-flalks few together about the tops of the branches, somewhat corymbose, above an inch long; simple, red, flightly hoary, bearing two minute bracteas in the lower part, and a solitary, drooping, very beautiful, four-fleck flower at the top. The germen is fmoother. Calyx-lobes broad and shallow. Corolla pink, with refixed oblong fragments, a quarter of an inch in length. Filaments purple, fmoother. Anthers yellow, converging, without flurs. Berry pear-shaped or globular, often fpotted, crumifon, of a peculiar flavour, somewhat like black currants, with a frong acidity, grateful to most people, in the former parts, for which purpofe they are largely imported from Russia. We can remember Cranberries from Lincolnshire, and the north-west corner of Norfolk, being fold in cart-loads about the freets of Norwich; but the extensive enclosures have, in many parts, deftroyed and drained their native bogs. Lightfoot records that at Longtown, on the borders of Cumberland, not less than twenty or thirty pounds-worth were fold each market-day, for five or six weeks together, and difpofed over different parts of the kingdom. In Sweden these berries serve only to boil silver plate to its due degree, with whitefets, their fhard acid corroding the superficial particles of the copper alloy.

38. V. macrocarpon. American Cranberry. Ait. Hort. Kew. ed. 1. v. 2. 13. t. 7. ed. 2. n. 22. Wildl. n. 27. Lamarck f. 4. (V. Oxycoccus f; Michaux Boreal.-Amer. v. 1. 228. "V. hipidulum; Wangenh. Amer. 168. t. 30. f. 67." Oxycoccus macrocarpus; Pursh 263.)—Corolla deeply four-fleck. Leaves elliptic-oblong, entire, flightly revolute, obtufe, fmoother. Stems ascending. Flowers fideal. —In bogs principally in a sandy soil, and on high mountains, frequent, from Canada to Virginia, flowering from May to July. A larger and more upright plant than the lat, with less convex, more oblong, much larger leaves. Several flowers come forth at the ends of the lat's branches, furmounted by the fhoots of the present year. Their bracteas are Situated towards the top of each falk, and, as well as the segments of the corolla, are larger than in the Common Cranberry. The flons however are shorter in proportion to their anthers, which are usually long. The berries are larger, and of a brighter red than the lat, collected in great abundance, for making tarts, in America, and exported from thence to Europe; but they always prove here far inferior in quality to the Russian Cranberry.
berries, however excellent in America. The best method of having American Cranberries in Europe, is by cultivation in an artificial bog with great plenty of water, as first contrived by Sir Joseph Banks. A very few square yards of ground thus employed, will yield as many Cranberries as any family can use. If allowed to hang till they are fully ripe, as late as October, they are even better than the Oxycoccus, and may be kept dry in bottles throughout the year. Our wild Cranberries have generally been gathered too early; as may also be the case with those brought from America.


We have seen no specimen of this species. Its fruit might be an acquisition to our tables, if railed in the same mode as the last.

In the above ample detail of the genus Vaccinium, which we trutl will prove acceptable to those who have ever attended to its former confussion, we have removed eight of Willdenow's species. Four of these are album, macronatum, ligustriinn and bifidum of Limnus, the latter being referred by Mr. Purth to Gaultheria by the name of ferfulisomnia; see that article, where this species should be introduced next to procumbens, with the following character. "Stem creeping, hispid. Leaves roundish-oval, acute. Flowers four-cleft, axillary, solitary, nearly feline. Corolla bell-shaped." (Vaccinium bifidum; Linn. Sp. Pl. 500. Willd. n. 26. Michaux Boreal.—Amer. v. t. 228. t. 23.)—In molly swamps, particularly where Cedars and other evergreens abound, from Canada to Pennsylvania, flowering in April and May. A small creeping plant. Berries white, very sweet, and agreeable to eat. Purth.—The other four discarded species of Willdenow are fulcatum, venugulum, amasun and virgatum of Dr. Solander, in Ait. Hort. Kew. ed. 1; the reasons of which rejection are to be found under our 13th and 17th species,—On the other hand, we have augmented this genus with seven entirely nondefcript species, for most of which we are obliged to the bounty of our often-mentioned friend Mr. Archibald Menzies; as well as with twelve others from Michaux, Purth, and our several English garden botanists and publishers. On this subject we would particularly direct our fellow-labourers to the plants hitherto confounded under V. Arctostraphylos, and the still-pupioed varieties of that interesting species; relating to which, discoveries are probably yet to be made, in the wilds of Tartary and the Levant, and possibly even in the greenhouses of France and England.

Vaccinium, in Gardening, comprehends many sorts of hardy, dwarf, under-shrubby, ligneous, evergreen, and deciduous plants, among which the species most commonly cultivated are those of the black whortle, or bilberry (V. myrtillus); the white Pennsylvanian whorts, or bilberry (V. album, see the preceding article); the red whortleberry (V. vitis idea); the cranberry, moss, or moor berry (V. oxyccocus); the marsh whortle, or great bilberry-bush (V. uliginosum); the hispid-flaked American whortleberry (V. hispidulum, see the preceding article); the corymbous-flowering American whortleberry (V. corymbosum); the privet-leaved Pennsylvanian whort-leberry (V. ligurstinum); and the flaminious American whortleberry (V. flaminium).

The first has slender, branching, shrubby flanks, about two feet in height, and produces large edible berries of a blackish-red colour. The second is a similar plant, producing small berries of a whitish colour. The third is a more dwarfish plant, producing clusters of nodding, reddish flowers, and red juicy berries of great value for tarts, and other culinary uses. The fourth has slender creeping flanks, which produce reddish edible berries of great value and importance for different culinary well-known purposes, as in pies, tarts, &c. The fifth has a woody, shrubby, branching flank of some height, and affords whitish purple flowers, and large berries. The sixth grows with slender, trailing, rough flanks, and yields large red berries. The rest are all American plants.

Method of Culture.—They may all be raised from seeds, or offset root-fuckers, creeping roots, and trailing rooting flanks. Those also growing with several rooted flanks and branches, may be divided in the root and top, into separate plants, in which way they succeed very well.

The seeds should be sown, where that method is purposed, in the autumn as soon as they are ripe and gathered, in a shady border, or the places where the plants are to grow and remain; and when the young plants are up, they should be kept clean, and be removed with earth about their roots, as there may be occasion.

The offsets and root-plants may be set out in the same seadon in proper places, which for the first four sorts are those where the soil is of a cold, light, sandy, heathy, moosy, moosy, or woody nature, and for the two succeeding ones in marshy and boggy situations; as these have the moat resemblance to those in which they grow naturally, and are the most prosperous. It may likewise be advisable in many cases to take the plants from their native situations with balls of earth about their roots. Some, however, succeed in the common borders and other parts. They may in some cases be removed in the spring season, but the other is the better way.

They are admitted into gardens and pleasure-grounds for the sake of variety, curiosity, and ornament, and some of them are cultivated for the use of their fruit. In its natural situation, that of the cranberry is often an object of very great importance, affording the poor gatherers of its berries considerable employment as well as much money. It delights most in rather wet, mossy, mossy situations.

The vaccinium oxyccocus of Limnus, or cranberry, may be preferred perfect for several years, merely by drying it a little in the sun, and then flopping it closely in dry bottles. The vaccinium myrtillus, or bilberry, yields a juice, which has been employed to stain paper, or linen, purple. In autumn the moor-game chiefly live upon the product of this shrub.

VACERRI. See Druids.

VACH, or Vakh, in Mythology, a name of the Hindoo god of Sarafati; faksi, or comfort of the creative power in the Tirmaur, or divine Triad of the East. The name Vach, or Vachi, is derived from speec, Sarafati being goddess of eloquence; and hence called also Vachdevi. Vachapaty, a title equivalent to lord of eloquence, is sometimes applied to

7
to the regent of the planet Jupiter, whom the Hindoos call 
Brahmapati; which see.

VACHA, in Geography, a town of Germany, in the prin-
cipality of Upper Hesse, on the Werra; 20 miles N.E. of 
Fulda.—Also, a town of Germany, in the margraveate 
of Anspach, on the Rednitz; 25 miles N.E. of Anspach.—
Also, a town of Peru, in the diocese of La Paz; 8 miles 
S.W. of La Paz.

VACHE, or Cavo's Island, an island about twelve miles 
from the south coast of Hispaniola, about twenty-four miles 
in circumference. It was formerly a place of rendezvous 
for pirates and freebooters, and is provided with three ports, 
one of which can receive vessels of 300 tons. N. lat. 18° 5'.
W. long. 74° 25'.

VACHET, or Cabre, and Bulk Rocks, rocks on 
the south coast of Newfoundland, a little to the eall of 
Placentia bay.

VACHELUSE, one of the Lipari islands; 3 miles S. 
of Stromboli.

VACHER, a town of France, in the department of 
the Upper Loire; 9 miles S. of Le Puy en Velay.

VACHON, Pierre, in Biography, an eminent performer 
on the violin, was born in Provence, 1732. After perfor-
mimg at the concert spiritual with great applause, he was placed 
at the head of the prince of Conti's fect band. In 1784, he 
was appointed concert-master to the king of Prussia at 
Berlin, after refiding some time in London, and leading at the 
Opera. He was one of the most certain and agreeable 
performers on the violin of his time, particularly in trios and 
quartets. He was likewise a composer of considerable merit, 
having furnished the different theatres of Paris with fix or 
eight successful musical dramas, and the performers on his 
instrument with several books of solos, quartets, and con-
certos, which were practicable and in a pleasing style. He 
had an extreme melancholy expression of countenance, of 
which he was not insensible, and used to say, in pleafantrty, 
"Ma triste countenance m'a fait beaucoup de mal auprès les 
dames."

VACA, or VACZ, in Geography. See Waitzen.

VACIAN, a town of Abafia; 15 miles S. of Alkasy.

VACKALEER, a town of Hindooitan, in Mylore; 
27 miles E.N.E. of Bangalore.

VACOMAGI, in Ancient Geography, a people of the isle 
of Albion, S. of the Caledonii, whose towns were Banata, 
Tamaa, the Winged Camp, or Alata Caima, and Turcf.

VACONE, in Geography, a town of the Popedom, in 
the duchy of Spoleto; 8 miles S.E. of Narni.

VACONTIUM, in Ancient Geography, a town of Lower 
Pannonia, at a distance from the Danube.

VACUA, Italy, in Myseo, a white open note; in old Eng-
lith, a void; in opposition to notes with black heads, like 
crotchets and quavers. In the first time-table all the 
notes were black, till the invention of the femibreve and minim.

VACUNA, in Mythology, a goddes held in high venera-
tion among the Sabines.

VACUNALIA, a festival kept in honour of the goddes 
Vacuna, who presided over those that were unemloyed or 
at rest. It was celebrated in December by the country labourers, 
after the fruits were gathered in, and the land tilled.

Ovid speaks of it in his Fasti, lib. vi.

"Nam quoque cum festa antiqua facra vacuna, 
Ante vacuales flanteque, fedentque focos."

The worship of Vacuna was very ancient in Italy, and 
established among the Sabines long before Rome was foun-
ded. Some take her for Diana, Venus, or Ceres, and
others for Bellona or Victoria. Varro thinks she was Mi-
erva.

VACUP, in Geography, a town of Bofnia; 32 miles S.W. 
of Saraje.

VACUUM, VACUITY, in Physics, a space empty or de-
void of all matter, or body.

Whether there be any such thing in nature as an absolute 
vacuum; or whether the universe be completely full, and 
there an absolute plenum, is a thing that has been contro-
verted by the philosophers of all ages.

The ancients, in their controversies, distinguished two 
kiinds; a vacuum coacervatum, and a vacuum interfusum, or 
difformantum.

Vacuum coacervatum, is conceived as a place defiitute of 
matter; such, e. gr. as there would be, should God anni-
hilate all the air, and other bodies within the walls of a 
chamber.

The existence of such a vacuum is maintained by the 
Pythagoreans, Epicureans, and the Atomists, or Corporu-
scularians; most of whom affect such a vacuum actually to exiit 
without the limits of the sensible world. But the modern 
Corpuscularians, who hold a vacuum coacervatum, deny that 
appellation; as conceiving, that such a vacuum must be in-
finte, eternal, and uncreated.

According, then, to the later philosophers, there is no 
vacuum coacervatum without the bounds of the sensible 
world; nor would there be any other vacuum, provided 
God should annihilate divers corporous bodies, than what 
amounts to a mere privation, or nothing; the dimensions of 
such a fpace, which the ancients held to be real, being by 
these held to be mere negations; that is, in such a place, 
there is no length, breadth, and depth wanting, as a 
body must have to fill it. To suppofe, that when all the 
matter in a chamber is annihilated, there should yet be real 
dimensions, is to fuppofe corporeal dimensions without body; 
which is absurd.

The Cartesians, however, deny any vacuum coacervatum at 
all; and affirm, that if God should immediately annihilate all 
the matter, v. gr. in a chamber, and prevent the ingrefs 
of any other matter, the consequence would be, that the 
walls would become contiguous, and include no space at all. They 
add, that if there be no matter in a chamber, the walls can 
be conceived no otherwise than as contiguous; these things 
being faid to be contiguous, between which there is not any 
thing intermediate: but if there be no body between, there 
is no extention between; extention and body being the fame 
thing; and if there be no extention between, then the walls 
are contiguous, and where is the vacuum?

But this reafoning is founded on a mistake, viz. that body 
and extention are the fame thing. See Matter.

Vacuum interfusum, or interfusum, is that supposed 
to be naturally interfused in and among bodies, in the pores 
of the fame body, and in the interstices between different 
bodies.

It is this kind of vacuum which is chiefly disputed among 
the modern philosophers; the Corpuscularians strenuously 
afferting it; and the Peripatetics and Cartesians as tena-
ciously impugning it. See Cartesian and Leibnitzian.

The great argument the Peripatetics urge against a va-
cuum interfusum is, that there are divers bodies frequently 
seen to move contrary to their own nature and inclination: 
and that for no other apparent reason, but to avoid a va-
cuum; whereas they conclude, that nature abhors a vacuum, 
and gives us a new class of motions ascribed to the force 
vacui, or nature's flying a vacuum. Such, they say, is the 
riie of water in a syringe, upon the drawing up of the 
 piston; such also is the ascent of water in pumps, and the 

3 X 2 

swelling
VACUUM.

swelling of the flesh in a cupping-glass, &c. But since the weight, elaticity, &c. of the air have been ascertained by pure experiments, those motions and effects are universally ascribed to the gravity and prehure of the atmosphere.

The Cartesians deny not only the actual existence, but even the possibility of a vacuum: and that on this principle, that extension being the essence of matter, or body, wherever extension is, there is matter; but mere space, or vacuity, is suppos’d to be extended; therefore it is material. Who-

ever affords an empty space, they say, conceives dimensions in that space, i.e. he conceives an extended subsistance in it; and therefore he denies a vacuum, at the same time that he admits it.

Des Cartes, if we may believe some accounts, rejected a vacuum from a complaisance to the tarte which prevailed in his time, against his own first sentiments; and among his familiar friends used to call his systen his philosophical romance.

On the other hand, the corpuscuar authors prove, not only the possibility, but the actual existence of a vacuum, from divers considerations; particularly from the consideration of motion in general; and that of the planets, comets, &c. in particular; from the fall of bodies; from the vibration of pendulums; from rarefaction and condensation; from the different specific gravities of bodies; and from the divisibility of matter into parts.

1. It is argued, that motion could not be effected without a vacuum. This is what Lucretius urg’d long ago.

"Principium quoniam cedendi nulla daret res, — unique materies quoniam flippata sufficit."

The force of this argument will be increas’d from the two following considerations: viz. first, that all motion is either in a straight line, or in a curve, which returns into itself, as the circle and ellipse; or in a curve that does not return into itself, as the parabola, &c. And, secondly, that the moving force must always be greater than the refiiance.

From hence it follows, that no force, even though infinite, can produce motion where the refiiance is infinite; consequently, there can be no motion either in a straight line, or a non-returning curve: because, in either of those cases, the protrusion, and consequently the refiiance, would be infinite.

There remains, therefore, only the motion of a revolving curve practicable: this must either be a revolution upon an axis, or an annular motion round a quiescent body; both which are, again, impossible in an elliptic curve; and, consequently, all motion must be in circles geometrically true; and the revolving bodies must either be spheres, spheroids, cylinders, or portions of them, exactly geometrical; otherwise the revolutions in a plenum would be impossible: but such motions, or such figured bodies, we do not know in nature. Therefore there is a vacuum.

2. The motions of the planets and comets demonstrate a vacuum: thus if Isaac Newton, — "That there is no such fluid medium as aether," (to fill up the porous parts of all the bodies, as the air and intercellular parts, and so make a plenum,) "seems probable; because the planets and comets proceed with so regular and lauful motion through the celestial spaces, both from and to all parts; for hence it appears, that those celestial spaces are void of all sensible refiinance, and consequently of all sensible matter. For the refiining force of fluid mediums arieth partly from the attraction of the parts of the medium, and partly from the inactivity of matter. Now, that part of the refiinance of any medium, which arieth from the tenacity or attraction of its parts, may be lessen’d by dividing the matter into smaller parts, and rendering those parts more smooth and slippery; but that part of the refiinance which arieth from the inactivity of matter, is always in proportion to the density of the matter; nor can it be diminished by dividing the matter, nor by any other means, except by diminishing the density thereof.

"Consequently, if the celestial regions were as dense as water, or as quicksilver, they would refiil almost as much as water or quicksilver; but if they were perfectly dense without any imperfect vacuity, though the matter were ever so fluid and subtile, they would refiil more than quicksilver does; a perfectly solid globe, in such a medium, would lose above half its motion, in moving three lengths of its diameter; and a globe not perfectly solid, such as the bodies of the planets and comets are, would be stopped still sooner. Therefore, that the motion of the planets and comets may be regular and lasting, it is necessary the celestial spaces be void of all matter, except perhaps some few, and much rarefied effluvia of the planets and comets, and the passing rays of light."

3. The fame great author deduces a vacuum also from the consideration of the weights of bodies; thus: "All bodies about the earth gravitate towards the earth; and the weights of all bodies, equally distant from the earth’s centre, are as the quantities of matter in those bodies. If the aether, therefore, or any other subtle matter, were altogether destitute of gravity; or did gravitate less than in proportion to the quantity of its matter; because (as Aristotle, Des Cartes, and others, argue) it differs from other bodies only in the form of matter; the same body might, by the change of its form, gradually be converted into a body of the same constitution with those which gravitate more in proportion to the quantity of matter; and, on the other hand, the more heavy bodies might gradually lose their gravity, by gradually changing their form; and therefore the weights would depend upon the forms of bodies, and might be changed with them; which is contrary to all experiment."

4. The descent of bodies proves, that all space is not equally full; for the same author goes on, "If all spaces were equally full, the specific gravity of that fluid with which the region of the air would, in that case, be filled, would not be less than the specific gravity of quicksilver or gold, or any other the most dense body; and therefore neither gold, nor any other body, could descend therein. For bodies do not descend in a fluid, unless that fluid be specifically lighter than the body. But, by the air-pump, we can exhaust a vessel, till even a feather shall fall with a velocity equal to that of gold in the open air: the medium, therefore, through which this feather falls, must be much rarer than that through which the gold falls in the other case."

"The quantity of matter, therefore, in a given space, may be diminished by rarefaction; and why may not it be diminished in infinitum? Add, that we conceive the solid particles of all bodies to be of the same density; and that they are only rarefiable by means of their pores: and hence a vacuum evidently follows."

5. "That there is a vacuum, is evident from the vibrations of pendulums; for since those bodies, in places out of which the air is exhausted, meet with no resistance to retard their motion, or shorten their vibrations; it is evident there is no sensible matter in those spaces, or in the occult pores of those bodies."

As to what Des Cartes urges of his materia ubitatis, that its tenuity prevents its refiinance from being sensible; and that a small body, striking against a greater, cannot in the least move, or refiil the motion of that other; but is re-
VACUUM.

acted back again with all its momentum; it is contrary to all experience. For Sir Isaac proves, that the density of fluid mediums is proportionable to their refistances, very nearly; and that they are exceedingly mistaken, who suppoze the refistance of projectiles to be infinitely diminished, by dividing the parts of the fluid, even in infinitum (Princip. lib. ii. prop. 38.) when, on the contrary, it is clear the refistance is but little diminished by the subdivision of the parts (ibid. prop. 40.,) and that the refilling forces of all fluids are nearly as their deneties. — For why should not the same quantity of matter, whether divided into a great number of subtile parts, or into a few larger ones, have the same refilling force? If there were no vacuum, it would follow, that a projectile moving in the air, or even in a space whence the air is exhausted, should move with as much difficulty as it would in quicksilver; which is contrary to experience.

Nor will it avail to suppoze the particles of the subtile fluid, constituting a plenum, to move conftantly and equally in all directions; and by favour of this hypothesis, to imagine that they act, but do not refit. Because the motion of a fluid favours the motion of a body in it, only as far as it is in the fame direction; and an infeline motion of the parts of the fluid, equal in all directions, cannot make the refistance lefs than if there was no motion of the parts. It is refuppozed by many that the particles of common fluids, e.g. water or air, are in a conftant infeline motion; but this does not hinder those fluids from refilling in proportion to their deneties.

If it should be alleged, that by refuppozing this dense fluid which replenishes space to penetrate the pores of bodies with the utmost freedom, (as light paffes through transparent bodies, and the magnetic and electric effluvia through most kinds of bodies,) its refistance will then be incomparably lefs than in proportion to its denety; the refistance in this cafe not being measured by the denety of the fluid, because the greater part paffes through the pores of the body in motion freely, without refistance: yet even on this hypothesis, the refistance of a golden ball in a plenum would be ftrictly very great. For this subtile fluid, how penetrating (over it be,) must refit the solid parts of the ball; which cannot move in the fluid without displacing its parts, and loosing as much motion as must be communicated to those parts; and this refistance depends on the quantity of solid parts in the ball; whereas the refistance which the fame ball meets with in quicksilver (which we suppoze to have no paffage through the ball,) depends on the quantity of the solid parts in an equal bulk of the quicksilver, which must be moved to make way for the ball. And this being lefs than the quantity of solid parts in an equal bulk of the golden ball, in proportion as the specific gravity of quicksilver is lefs than that of gold, it follows that the refistance of a golden ball, moving in such a subtile penetrating plenum, would be lefs than its refistance in quicksilver. The refistance of a golden ball in a plenum (how freely ever the matter conftituting it paffes through the pores of the ball, and how large and numerous these pores may be,) must correspond to the solid matter in the ball; which is greater than the solid matter in any equal bulk of any of our fluids, upon which their refistances depends.

6. That there are interfpered vacuities, appears from matter's being actually divided into parts, and from the figures of those parts; for, on supposition of an absolute plentitude, we do not conceive how any part of matter could be actually divided from that next adjoining, any more than it is possible to divide actually the parts of absolute space from one another: for by the actual division of the parts of a continuum from one another, we conceive nothing else underfoot, but the placing of those parts at a distance from one another, which, in the continuum, were at no distance from one another: but such divisions between the parts of matter must imply vacuities between them.

7. As for the figures of the parts of bodies, upon the supposition of a plenum, they must either be all rectilinear, or all concavo-convex; otherwise they would not adequately fill space; which we do not find to be true in fact.

8. The denying a vacuum, suppozes what it is impossible for any one to prove to be true; viz. that the material world has no limits.

However, we are told by some, that it is impossible to conceive a vacuum. But this surely must proceed from their having imbibed Des Cartes's doctrine, that the effence of body is constituted by extenlion; as it would be contra-dictory to suppoze space without extenlion. To suppoze that there are fluids penetrating all bodies and replenishing space, which neither refit nor act upon bodies, merely in order to avoid admitting a vacuum, is feigning two forts of matter, without any necifity or foundation; or is tacitly giving up the question.

Since then the effence of matter does not confit in ex-tenlion, but in fluidity and impenetrability, the universe may be faid to confit of fluid bodies moving in a vacuum: nor need we at all fear, left the phenomena of nature, most of which are planfly accounted for from a plentitude, should become inexplicable when the plenum is set aside. The principal ones, such as the tides; the fuppenlion of the mercury in the barometer; the motion of the heavenly bodies, and of light, &c. are more eafily and satisfactorily accounted for from other principles. See Tides, &c.

VACUUM, or Vacuum Boyleanum, is also used, somewhat abufively, to express that approach to a real vacuum, which we arrive at by means of an air-pump.

Thus, any thing put in a receiver to be exhausted, is said to be put in vacuo: and thus, most of the experiments with the air-pump are said to be performed in vacuo, or in vacuo Boyleanum. Some of the principal phenomena observed of bodies in vacuo, are: that the heaviest and lightest bodies, as a guinea and a feather, fall here with equal velocity: — that fruits, as grapes, cherries, peaches, apples, &c. kept for any time in vacuo, retain their nature, freshefs, colour, &c. and those withered in the open air recover their plumpness in vacuo: — all light and fire become immediately extinct in vacuo: — the collifion of flint and flécé in vacuo, produces no sparks: — no found is heard, even from a bell rung in vacuo: — a square phial, full of common air, well closed, breaks in vacuo; a round one does not: — a bladder half full of air will heave up forty pounds weight in vacuo: — cats, and most other animals, soon expire in vacuo.

By experiments made in 1704, Dr. Derham found, that animals that have two ventricles, and no foramen ovale, as birds, dogs, cats, mice, &c. die in less than half a minute; counting from the first exflation: a mole died in one minute, a bat lived seven or eight. Insects, as waffps, bees, gnats, &c. seemed dead in two minutes; but after being left in vacuo twenty-four hours, they came to life again in the open air: fishes continued twenty-four hours in vacuo, without appearing much incommoded.

Seeds planted in vacuo do not grow: — small beer dies, and lofes all its taste, in vacuo: — likewarm water boils very vehemently in vacuo: — and air, rushing through mercury into a vacuum, throws the mercury in a kind of shower upon the receiver, and produces a great light in a dark room.
The air-pump can never produce a perfect vacuum; as is evident from its structure, and the manner of its working: in effect, every exsuction only takes away a part of the air; so that there will still be some left after any finite number of exsuctions. Add, that the air-pump has no longer any effect than while the spring of the air remaining in the receiver is able to lift up the valves; when the rarefaction is come to that degree, you can come nearer to a vacuum. Sir Isaac Newton, observing that a thermometer suspended in vacuo, and in that state removed to a warm or a cold room, receives the heat or cold, and rises, or falls, almost as soon as another in open air; takes thence occasion to suspect, that the heat of the warm room is conveyed through the vacuum, by the vibrations of a much subtilet medium than air, which remained in the vacuum after the air was drawn out. Opt. P. 325.

VACUUM, Torricellian. See Torricellian.

VADA, in Ancient Geography, a place which belonged to the Batavi, W. of Batavodurum.

VADA Sabatia, Vai, a town of Italy, in Liguria.

VADA Valatera, a place of Italy, in Etruria.

VADA, in Geography, a sea-port town of Etruria, at the mouth of the river Cecina; 18 miles S.W. of Volterra. N. lat. 43° 17'. E. long. 10° 30'.

VADACOURCHY, a town of Hindoostan, in Calicut; 10 miles S.W. of Palicaudchery.

VADAGARY, a town of Hindoostan, in Madura; 25 miles W. of Colpetta.

VADAMADERY, a town of Hindoostan, in the province of Dindigul; 15 miles N.E. of Dindigul.

VADAMIA, a town of the Arabian Trak, on the Euphrates; 105 miles W.N.W. of Baffora.

VADARI, in the Civil Law, denotes a peron to pledge, undertake, or give security, in behalf of another, that he shall, on a certain day, appear in court, to prosecute, or answer.

If he fails, his surety has an action vadamian decreti against him; that is, an action for defering his bail. See WAGNER.

Properly speaking, vadari reum, among the Romans, was the act of the plaintiff himself, who here demanded suarety, or bail from the defendant, that he would appear before the prætor on a certain day.

VADDAL, in Geography, a town of Hindoostan, in Soonda; 27 miles S.E. of Goa.

VADDER, Louis De, in Biography, an eminent landscape painter, was born at Brüells in 1560. It is not known under whom he studied, where he refixed, or how long he lived; but he has left works behind him which exhibit him as a diligent observer of nature, with taste and feeling to fecile his most fascinating effects, and ability to execute what he attempted, so as to afford the greatest pleasure to all admirers of the art.

It is not improbable that he refixed some time in Italy, and had studied the pictures of Titian; perhaps wrought in the same scenery; for his finest works have a great degree of resemblance to those of the Venetian, in the choice of forms and colour however more than in the execution, in which he more resembles Pynechler in freshness and fulness.

Two large pictures by Vadder found their way into this country some time ago, and fully justify these remarks; but in general his works are scarce, or most probably have been introduced under fictitious names. In his native country he is better known and justly esteemed. He has left a few spirited engravings in the style of Lucas Van Uden.

VADE', John Joseph, was born at Ham, in Picardy, and is distinguished as the inventor of a kind of humorous French poetry. In his youth he refixed at Paris, and led a dissipated life; but in more advanced age he perceived the defects of his early education, and endeavoured to supply them by a perusal of the best French authors. As he was original in his mode of thinking, he adopted a new kind of writing, to which he was led by his familiarity with vulgar life. This species of writing was called the "Poilfaire manner," and he was hence denominated the "Teniers" of poetry. His productions, which consisting of tales and songs, were amusing and popular; and as he possessed many amiable qualities, he was generally beloved in the gay societies which he frequented. But he was thus led to pursue a course of debauchery, which terminated his life in 1577, at the early age of 37 years. His works, consisting of comic operas, parodies, songs, &c. have been collected in 4 vols. 8vo., to which has been added a volume of pothousand pieces of a similar nature, though of superior merit, and indicating talents of a higher class, which he might have cultivated to advantage. Moreri. Nouv. Dict., Hill.

VADELECT. See VALET.

VADE-MECUM, or a VENI-MECUM, a Latin phrase, used in English, to express a thing that is very familiar; and which any one usually carries about with him: it is chiefly applied to some favourite book.

Some make Virgil, others Horace, their vade-mecum; others an Epicetus, &c.

This is what the Greeks call τῶν μηγέθων, or manual. The Arabs have a phrase of equal import; viz. ḥabīl al fa'ir, comes itineræ, companion of the journey. In Latin it is bel expressed by comes; as comes theologicus, comes rufus, &c.

VADENAGORCHY, in Geography, a town of Hindoostan, in Coimbatore; 15 miles W. of Damicottota.

VADIANUS, Joachim, in Biography, was born in 1484, at St. Gall in Switzerland, where his father, Leonard Von Watt, was a senator. Having studied at Vienna, he was chosen professor of the belles lettres, and rector of the university. In 1514 he was honoured at Lintz by the emperor Maximilian with the poetical laurel. In his subsequent travels, he applied to the study of geography, and in 1518, having taken the degree of M.D. at Vienna, he returned to St. Gall, and devoted himself to the practice of physic, to which he joined theology upon the principles of the reformers, whose cause he promoted as a senator, and also by his discourses and writings. Having been honoured eight times with the office of confus, he died in 1551, and bequeathed his library to his fellow-citizens. On the various subjects of mathematics, geography, antiquities, medicine, and theology, he published works, as well as several Latin poems. His "Commentary on Pomponius Mela de Situ Orbis," and his "Scholia on the second Book of Pliny's Natural History," are the most generally known of his literary performances. Scaliger regarded Vadianus as one of the most learned men in Germany; and on account of his able conduct of public affairs, Thuanus presents him to notice, as an example, that men of letters and philosophers are not, as fuch, disqualifed for bufiness. Moreri.

VDATION. See VADARI.

VADICASSES, in Ancient Geography, a people of Gaul, who have been distinguished by different denominations: the Bodicasses of Pliny being the same with the Vadicasses of Ptolomy, and both are supposed to comprehend the ancient inhabitants of Bayeux, anciently called Naronagus.

VADILCORA, or V'adi al Kara, in Geography, a town
town of Arabia, in the province of Hedjes; 56 miles N.
of Medina. N. lat. 25° 30'. E. long. 38° 20'.
VADIMONIS LACUS, in Ancient Geography, a lake of
Italy, in Etruria, in the vicinity of Ameria.
VADIMONIUM, in the Civil Law, a promise, or
bond, given for appearance before the judge upon a day
appointed. See VADARI.
VADIN, in Geography, a town of European Turkey,
in Belcarria, on the Danube; 32 miles W. of Nicepoli.
VADIUM. See GAGE and PONTE per Vadium.
VADNIA, in Ancient Geography, a town of Hither
Spain, belonging to the Cantabri. Ptolomy.
VADO, or VADI, in Geography, a sea-port town of
the Genoese, situated in a bay of the Mediterranean,
with a good harbour; 3 miles S. of Savona. N. lat. 44° 14'.
E. long. 8° 30'.
VADO, II, a town of Naples, in Abruzzo Citra, near
the Adriatic; 16 miles E.S.E. of Larnzano.
VADO SATTA, a town of Naples, in Capitanata; 6 miles
S.E. of Troia.
VADOCONDES, a town of Spain, in old Califile;
26 miles W.S.W. of Olma.
VADORANUM, a town of Hindoostan, in the Car-
natic; 12 miles S. of Nagepaur.
VADUTZ, a town and castle of Germany, in the
principalcy of Lichtenfein; 26 miles S. of Lindan. N.
lat. 47° 5'. E. long. 9° 31'.
VAELEO, a small island in the Baltic, near the north
coast of Lolland. N. lat. 56° 57'. E. long. 10° 46'.
VAELUE, a river of the island of Ceylon, which runs
into the sea, near Mago.
VA-EMBU, in the Materia Medica, a name given by
some authors to the acorus Astaticus, or Astatic sweet
flag.
VAENA, in Geography, a town of Spain, in the pro-
cince of Cordova; 18 miles E.S.E. of Cordova.
VAERO, a small island in the North sea, about 20
leagues from the coast of Norway. N. lat. 67°.
VAESPAA, in Ancient Geography, a town of Asia, in
the Lesser Armenia, towards the mountains, and at a
distance from the Euphrates.
VAG BESTER, in Geography, a town of Hungary, on
the river Waag; 6 miles N.E. of Boelfko.
VAGA, PIERINO DEL, in Biography, whose real name was
Pietro Buonacorfi, was one of those ingenious painters em-
ployed by Raphael to assist him in adorning the Vatican.
He was born at a village near Florence in 1500, of indigent
parents. His father was killed in battle, and his mother
died of the plague before he was two months old. He is
said to have been reared by goat's milk, and as a deftinct
orphan, was taken under the protection of an indiffer-
ent artist named Andrea de Ceri, whose house was frequented
by several young artists of Florence.
As Pierino had discovered a d€sired inclination for paint-
ing, he was placed, when eleven years old, under the tuition
of Roldoso Ghirlandaio, and with his assistance soon became
a very able designer, and more particularly, as Vasari ob-
serves, by studying with many other Florentine youths as
well as strangers the Cartoon of M. Angelo, known by the
name of the Cartoon of Pisa.
His talents acquired for him the attention and approba-
tion of a Florentine painter of inferior quality, but who had
nevertheless much employment, and was in want of a skil-
ful designer to assist him in conducting his undertakings.
With the consent of his guardian Ceri, Pierino accom-
panied this man, whose name was Vaga, to the neighbour-
hood of Rome, whence, when the work was completed which
he had undertaken, he was conveyed by his employer to Rome
in 1515, and there introduced to several painters, to whose
care and assistance Vaga recommended him during his ab-
fence; and thence he was called Pierino del Vaga. In
Rome he endured great miseries, and obtained bread with
difficulty; but ever intent upon improvement, he studied
hard the pictures of Angelo in the Sifini, and designed
from the pieces of antique sculpture which by chance came
to his hand, and after a short time, his ardent exertions
were repaid by a degree of success, which led to his adop-
tion into the school of Raphael.
Julio Romano and Francesco Penni first did justice to his
talents by recommending him to their master, who, upon the
first sight of his productions, placed him under Giovanni da
Udine, who had the management of the ornamental parts of
the works then going on in the Vatican. But Pierino
was soon found equal not only to assist Giovanni in the gro-
tefque ornaments and in the figure, but also Polidoro da
Caravaggio in the antique subjects in chiaro-furo, and
fometime also in executing the figure subjects from the
sketches of Raphael, as among others may be seen, accord-
ing to Vafari, in the Hebrews crossing the river Jordan,
the surrounding Jericho, the combat of Joshua with the
Amorites, Abraham preparing to sacrificing Isaac, Jacob
wrestling with the angel, Joseph and his brethren, &c. &c.
The praise which he gained by these labours inspired him
only with a more earnest desire to improve, and the mildness
and attention of his manner procured for him the esteem
and even love of his master Raphael.
After the death of Raphael, he was employed, with
J. Romano and G. F. Penni, to continue and complete the
adornment of the Vatican, great part of the execution of
which is the work of Del Vaga.
For a short time he went to Florence, where the pope
Leo X. was there, but quickly returned to Rome and per-
fused his labours, adding to them many original ones, the
inventors of his own mind. Among them was the hall of
the house of Machifone Baldaffini, which he adorned with
subjects from the Roman history, with arms, trophies, &c.
Perhaps the most perfect of these minor works was the
birth of Eve, which he painted in the church of S. Mar-
cello, and in which he exhibited his decided predilection
for the style of the Florentine school, and the successes
which he had studied the works of M. Angelo.
Pierino was in full possession of public repute when he
was compelled to fly for safety from Rome, by the factting
of that city in 1527. He took refuge in Genoa, where he
was graciously received by prince Doria, who at that time
projected the embellishment of his superb palace near the
gate of St. Thomas. He had here a full opportunity of
displaying his imagination, as well as his executive powers;
and here he indulged in those inventions which breathe the
spirit of Raphael himself, and rival the exertions of his
fellow pupil J. Romano, in the palazzo del T. at Mantua:
both do honour to the school they had studied in, and the
patron who employed them. He is said not to have been
sufficiently ferulous in the choice of his coadjutors, and
the grandeur of his designs is consequently weakened by
their imperfect execution. He died at Rome in 1547, aged 47.
VAGA, Tagadempt or Swamma, in Ancient Geography, a
town of Africa, in Mauritania Cufarifns, E. of Cirta.
Ptolomy. This town, named Bagza by Plutarch, was
situated S.E. of Victoria. It was one of the episcopal
sees of Numidia.
VAGA, in Geography, a river of Russa, which rises
near Poprovico, in the government of Vologda, and runs
into the Dwina, at Ult Vagikoi, in the government of Archangel.

VAGABOND, a person that wanders about, having no certain dwelling; or a sturdy beggar, &c. mentioned in divers flatutes.

"De vagabundis, et aliis hominibus mendicantis, qui se nominant."—Travelling men, &c. Charta 22 Hen. VI.


All itinerant beggars, fortune-tellers, collectors for goads, fencers, bearwards, players of interludes, minstrels, jugglers, &c. shall be reputed vagabonds, rogues, and sturdy beggars. 39 Eliz. c. 4.

The court of Areopagus at Athens punished idlenees, and exercized a right of examining every citizen in what manner he spent his time. The civil law expelled all sturdy beggars from the city; and, in our own law, all idle persons or vagabonds, (whom our ancient flatutes describe to be "such as wake in the night, and sleep in the day, and haunt customable taverns, and alehouses, and rovs about; and no man wot from whence they come or whither they go;" or such as are more particularly described by flatute 17 Geo. II. c. 5. called the Vagrant Act), and divided into three classes, idle and disorderly persons, rogues and vagabonds, and incorrigible rogues), are offenders against the good order, and blemishes in the government, of any kingdom.

Idle and disorderly persons are thus described by the said flatute: viz. all persons who threaten to run away, and leave their wives or children to the parih: all persons who shall unlawfully return to the parih or place from whence they have been legally removed by order of two justices, without bringing a certificate from the parih or place whereunto they belong; all persons, who, not having where- with to maintain themselves, live idle without employment, and refuse to work for the usual and common wages given to other labours in the like work, in the parishes or places where they live: all persons going about from door to door, or placing themselves in streets, highways, or passagges, to beg or gather alms in the parishes or places where they dwell. And by 32 Geo. III. c. 45. all persons who by their wilful default and neglect permit their wives and children to become chargeable to their parishes or places; and it shall be made appear to two justices that such persons do not use proper means to get employment, or being able to work do neglect to work, or spend their money in alehouses or places of bad repute, or in any other improper manner, and do not employ a proper proportion of the money earned by them towards the maintenance of their wives and families, by which they or any of them become chargeable to such parish or place; and these shall be deemed idle and disorderly persons.

Rogues and vagabonds are, by the same flatute, such as follow: viz. all persons going about as patent-gatherers, or gatherers of alms, under prentence of los by fire, or other cahaulty; persons going about as collectors for prifons, gaols, or hospitals; fencers; bearwards; common players of interludes, and all persons who shall hire for hire, gain, or reward, act, represent, or perform, or caufe to be acted, represented, or performed, any interlude, tragedy, comedy, opera, play, farce, or other entertainment of the flage, or any part therein, not being authorized by law; minstrels; jugglers; and all persons pretending to be gypsys, or wandering in the habit or form of Egyptians; fortune-tellers, or persons pretending to have skill in phsyognomy, palmeiry, or like crafty science, or to tell fortunes; or using any fubtle craft, to deceive and impose on any of his ma- jesty's subjeets; or playing or betting at any unlawful games or plays; all persons who run away, and leave their wives or children, whereby they become chargeable to any parih or place; all petty chapmen, and peddlars, wandering abroad, not being duly licenfed, or otherwise authorized by law; all persons wandering abroad, and lodging in alehouses, barns, out-houses, or in the open air, not giving a good account of themselves; all persons wandering abroad, and begging, pretending to be foldiers, mariners, or feafaring men (but by 43 Geo. III. c. 67, foldiers, sailors, marines, and the wives of foldiers therein mentioned, are relieved against the penalties of the vagrant acts); or pretending to go to work in harvest, without a certificate ligned by the minister, and one of the churchwardens or overseers where he shall inhabit, that he hath a dwelling-house or place there; illegally dealing in lottery tickets and shares; persons to the number of two or more asfailing to defory game in the night-time (39 & 40 Geo. III. c. 50.); and all other persons wandering abroad and begging, shall be deemed rogues and vagabonds. By 23 Geo. III. c. 88. any person apprehended, having upon him any picklock key, crow, jack, bit, or other implement, with an intent feloniously to break and enter into any dwelling-howe, warehouse, coach-howe, flable, or oul-howe, or who shall have upon him any piftol, hanger, cutlifes, bladegeon, or other offensive weapon, with intent feloniously to affault any person; or shall be found in or upon any dwelling-howe, warehouse, coach-howe, flable, or oul-howe, or in any in- closed yard or gardin, or area belonging to any house, with intent to steal any goods or chattles, shall be deemed rogue and vagabond within the meaning of the flatute of the 17 Geo. II. So also by 39 & 40 Geo. III. c. 87. suspected persons and reputed thieves frequenting the Thames, and the quays and warehoues, &c. adjoining, with a felonious intent.

Incorrigible rogues are by 17 Geo. II. c. 5. thus described: all end-gatherers offending against the flatute of 13 Geo. I. being convicted of such offence, which offence, by 13 Geo. I. c. 25. is this, viz. the collecting, buying, receiving, or carrying away any ends of yarn, wefts, thrums, short yarn, or any refufe of cloth, drugget, or other woollen goods; and the punishment of such persons is in order to prevent their committing abuses, by such practices, in the woolen manufaacture: all persons apprehended as rogues and vagabonds, and escaped from the persons apprehending them; or refusing to go before a justice; or to be examined on oath before such justice; or refusing to be conveyed by such pafs as is hereinafter directed; or knowingly giving a false account of themselves on such examination, after warning given them of their punishment: all rogues or vagabonds who shall break or escape out of any house of correction, before the expiration of the term for which they were committed or ordered to be confined by this act: all persons who, after having been punished as rogues and vagabonds, and discharged, shall again commit any of the said offences: all these shall be deemed incorrigible rogues. To which may be added, any person convicted of a third offence against the 6 Geo. III. c. 48.

Idle and disorderly persons are punishable by the flatute 17 Geo. II. c. 5. with one month's imprisonment in the house of correction, upon conviction before one justice, by his own view, confession, or oath of one witnes. Any person...
VAGABOND.

perfon may apprehend or carry before a justice any such perfon, going about from door to door, or placing themselves in streets, highways, or passages, to beg alms in the parishes or places where they dwell; and if they shall refi, or escape from the perfon apprehending them, they shall be puni- sioned as rogues and vagabonds. The reward for appre-
hension is 5s., to be paid under order of the justice, by any overfeer where such offender shall be apprehended.

Rogues and vagabonds are to be apprehended by a con-
table, or any other perfon, and conveyed to a justice of the peace. The reward for apprehending is 10s., by order of the justice, payable by the high offender, or, in case of no high offender, by the petty offender; and on refusal, the justice may by his warrant levy the sum of 20s. by dif-
trefs and sale of the conftable’s goods, &c. (17 Geo. II. c. 5.) But the justice shall not order the reward to be paid until the rogue or vagabond be publicly whipped (women excepted), or sent to the house of correction, and till the examination required by the said act shall be actually tran-
smitted to the next feffions. (32 Geo. III. c. 45.)

The penalty for not apprehending such offender shall be, on con-
viction before one justice, or view or oath of one witness, a forfeitur of 10s. to the poor by dif-
trees. The justices, or any two of them, shall, four times a year at least, order by warrant search for and apprehension of rogues and vaga-
bonds. (17 Geo. II. c. 5.) And by 25 Geo. II. c. 36.
two justices may examine perfo ns apprehended on a pri
vacy on oath as to their settlement and means of living;
and upon their failure of shewing that they have a lawful way of getting a livelihood, or of procuring some responsible housekeeper to testify to their character, and to give securitv (if required) for their future appearances, the justices may commit them to some prison or house of cor-
rection, for any time not exceeding six days, and order the overfeers of the poor to advertise and describe them, &c.; and if no acception shall be laid against them, they shall be discharged, or otherwise dealt with according to law.

After examination by a justice, such justice shall order the offender apprehended to be publicly whipped by the con-
table, petty offender, or some other perfon appointed by them, or order him to be sent to the common gaol (27 Geo. III. c. 11.), or house of correction, till the next feffions, or for any les time (such time not being less than seven days, 32 Geo. III. c. 45.) as such justice shall think proper.—N.B. It is only here expressed generally, that he shall be publicly whipped; the form of the punishment may perhaps be well collected from the provisions of former vagrant acts. By the 22 Hen. VIII. c. 12, the vagrant was to be carried to some market-town or other place, and there tied to the end of a cart naked, and beaten with whips throughout such market-town or other place, till his body should be bloody by reason of such whipping. By the 39 Eliz. c. 4. he was to be stripped naked from the middle upwards, and only whipped till his body should be bloody.

The justices of the next seffions, after commitment of the offender, may, after examination, order a rogue or vaga-
bond to be detained in the house of correction to hard labour, for any further time not exceeding six months, and an incorrigible rogue for any further time not exceeding two years, nor less than six months; and during the time of con-
finement, to be whipped in such manner, and at such times and place, as they shall think fit. Such perfon may, if the seftion think convenient, afterwards be sent away by a pafs; and if such perfon, being a male, is above the age of twelve years, the court may, before he is discharged from the house of correction, send him to be employed in his majesty’s service by sea or land; and if such incorrigible rogue, for or-
dered by the seftions to be detained in the house of correction, shall break out or make his escape, or shall offend again in like manner, he shall be guilty of felony, and be transported for seven years. 17 Geo. II. c. 5.

By 13 & 14 Car. II. c. 12. the justices in seftions may transport such rogues, vagabonds, and sturdy beggars, as shall be duly convicted, and adjudged to be incorrigible.

By 17 Geo. II. c. 5. if the child of any vagrant, above the age of seven years, shall be committed to the house of correction, the justices in seftions, if they see convenient, at any time before such child be discharged, may order such child to be placed out as a servant or apprentice to any per-
son who is willing to take such child, till such child shall be of the age of 21 years, or for a less time; and if any of-
offender, who was found wandering with such child, shall be again found with the same child which was so placed out, he shall be deemed an incorrigible rogue. Where any vagrants have been committed to the house of correction till the next seftions, if, on examination of such perfo ns, no place can be found to which they may be conveyed, the seftions shall order them to be detained and employed in the house of correction, until they can provide for themselves, or until the justices in seftions can place them in some lawful calling, as servants, apprentices, folder s, mariners, or otherwife, either within this realm, or in the plantations in America.

After such whipping or confinement as aforesaid, the justice may, if he think convenient, by a pafs under hand and seal, cause the offender to be conveyed to the place of his last legal settlement; but if it cannot be found, then to the place of his birth; or if he be under the age of 14 years, and have any father or mother living, then to the place of the abode of such father or mother, there to be delivered to some churchwarden or overfeer. 17 Geo. II. c. 5.

And it shall be certified in the pafs, that such perfon has been actually publicly whipped, or confined in the house of correction as aforesaid. 32 Geo. III. c. 45.

The justice shall make a duplicate of the pafs and ex-
amination, and sign the same; and shall afterwards transmi-
t the duplicate of the pafs, annexed to the examination, to the next seftions, there to be filed and kept on record; and shall annex the duplicate of the examination to the pats, and fend it with the same; and the said pats, examination and duplic-
t of the same, shall and may be read in any court of record as evidence. 17 Geo. II. c. 5.

And the justice who shall make the pats shall with the pats cause likewise to be delivered to the conftable a note or certificate, ascertaining how they are to be conveyed, by horse, cart, or on foot, and what allowance such conftable is to have for conveying them. The conftable who shall receive such pats and certificate, shall convey the perfon ac-
cording to the direction of the pats, the next direct way to the place whither he is ordered to be sent, if it be in the same county, riding, division, corporation, or franchis; if not, he shall deliver the said perfon to the conftable of the first town, par 
ishes, or place, in the next county, riding, division, corporation, or franchis, in the direct way to the place whither he is to be conveyed, together with the pats and duplicate of the examination, taking his receipt for the same.

And such conftable shall, without delay, apply to some justice in the same county or division, who shall make the like certificate, and deliver it to the conftable, who shall with all speed convey such perfon unto the first parish town or place in the next county or division, in the direct way to the place to which he is to be conveyed; and so from one county or division to another, till they come to the place to which such perfon is sent. And the conftable, who shall deliver
deliver such person to the churchwarden or other person ordered to receive him, shall at the same time deliver the said pass, with the duplicate of the examination, taking their receipt for the same. And whereas the present mode of conveying vagrants in the custody of a constable is frequently insufficient, it is enacted, that the justices in seances may order that all rogues and vagabonds apprehended within their liberties, and ordered to be conveyed by pass, shall be conveyed by the master of the house of correction, or his servants, or by a constable, as they shall think proper; and they may make an order, that all constables, to whom rogues and vagabonds brought from another county are delivered, shall forthwith convey them to the nearest house of correction or within their liberty, to be afterwards removed by such master or his servants as aforesaid, and according to the provisions of the aforesaid act. 32 Geo. III. c. 45.

The passing of vagrants may be suspended on account of sickness by 35 Geo. III. c. 101.

By 49 Geo. III. c. 124. it is enacted, that in all cases whenever the execution of any order of removal, or of any vagrant-pass, shall be suspended by virtue of the 35 Geo. III. c. 101. any other justice of the peace of the county, or other jurisdiction within which such removal or pass shall be made, may direct and order the same to be executed, and the charges incurred to be paid, and may carry into execution any such amended orders, as fully as the same can be done by the justices who shall make the order of removal, or the justice who shall grant the pass.

Any justice before whom a vagrant shall be carried may order him to be searched, and his bundles to be inspected, by the constable or other officer in his presence; and if it shall appear that such vagrant shall be found to have sufficient wherewithal to pay for his passage, either in whole or in part, the justice shall order so much of the money to be paid, or other effects found upon such vagrant to be sold, and employed towards the expenses of taking up and passing such vagrant, returning the surplus, after deducting the charges of such sale. 17 Geo. II. c. 5.

To defray the expenses of apprehending, conveying, and maintaining rogues, vagabonds, and incorrigible rogues, and defraying all other expenses necessary for the execution of this act not herebefore provided for, the justices in seances may cause such sums as shall be necessary to be raised in the same manner as the general county rate.

Any person aggrieved by any act of any justice out of seances, in or concerning the execution of this act, may appeal to the next general or quarter-seances of the county, riding, liberty, or division, giving reasonable notice thereof; and whole order thereupon shall be final.

Persons fined for any thing done in the execution of this act may plead the general issue; and if they recover, shall have treble costs.

In all cities and towns, where by virtue of special acts of parliament the charge of passing vagrants is to be defrayed in other manner than is by this act directed, or where such vagrants, by virtue of special statutes, are to be apprehended and conveyed by any person or officer, other than those named in this act, the same shall not be altered hereby. And persons conveyed in London, shall not be delivered in any other precinct within the city, but in the next county. 17 Geo. II. c. 5.

VAGAI, in Geography, a river of Ruffia, which runs into the Itirfich, 8 miles S.E. of Tobolok.

VAGAL, in Ancient Geography, a town of Africa, in Mauritania Cufieranis, on the route from Rufucerrum to Catama, between Gadaum Cafta and Caftellum Tingitannum, according to the Itinerary of Antonine.

VAGENI, Bageni, or Vagenni, a people of Italy, in Liguria, towards the sources of the river Eridanus, according to Silius Italicus. Pliny calls them Vagnieni Ligures.

VAGERA, in Geography, a town of Arabia, in the province of Nedjed; 90 miles N.E. of Mecca.

VAGESA, in Mythology, a name of the Hindoo god Siva. He is also called Vagefwara, or the lord Vagefa; sometimes pronounced Bagis, and Bagifwar. His consort Parvati, as his energy or fakti, is named Vageswari. (See PARVATI and SIVA.) In the latter article, it will be seen that some etymologists, from this similarity of name, strengthened by other characteristic coincidences, conceive Bagisa and Bacchus to be names of the same person.

VAGESWARA, a name of the Hindoo god Siva; meaning the lord Vagera, as noticed under that article.

VAGINA,
VAGINA.

VAGINA, a Latin term, literally signifying a Flushed, or \[\text{flabellum}, \text{used on divers occasions}. \]

VAGINA in \textit{Architecture}, is used for the lower part of a termus; because resembling a Flushed, out of which the Flushed seems to issue. \textit{See Terms.}

The Flushed is that long part between the base and the capital; and is formed in divers manners, and with divers ornaments.

VAGINA, in \textit{Anatomy}, the membranous canal leading from the external organs of generation to the neck of the uterus, and receiving the male organ in coitus. \textit{See Generation.}

The Flushed is liable to an inflammation after delivery, occasioned by the head of the child being long retained in the pelvis. If the swelling and inflammation are not very great, they are generally removed by the discharge of the lochia; but if the internal membrane of the Flushed be inflamed, emollient injections must be occasionally used, and a piece of prepared sponge should be introduced, to prevent its coagulating. The sponge may be thus prepared: Take a piece of a proper size for keeping the Flushed open, when it is to be closed, and roll it tight from end to end with a flaring; cut off any hard lumps, and lay it to dry; then take off the flaring, anoint it with lard, and introduce it into the Flushed, the moisture of which will expand it. If the pressure on this part was so long continued, as to obstruct the circulation in it, a mortification will ensue, which may be either total or partial: if it be total, the patient will die; if partial only, the mortified parts will slough off. This may be known by great pain after delivery; a fetid smell, and a discharge of sharp ichor at first from the Flushed, then put and matter. When this is the case, emollient fomentations may be thrown up from time to time; doffils of lint may be dipped in some proper balsam, and applied to the parts in order to detere and heal them; and when the sloughs are all call off, great care should be taken to prevent the Flushed from growing together, either by introducing doffils of lint, or pieces of sponge into it.

VAGINA, Imperforate. The vulva is liable to two different kinds of imperforation, which ought to be differ- minated. First, the labia and ymphæ may be covered where united and blended together, the orifice of the meatus urinarius being totally covered by them, so that no urine can be voided. Secondly, the hymen may form a complete septum, or else some part of the Flushed may be closed with a membrane of similar structure; in which circumstan- tances, although the Flushed be imperforate, there is no impediment to the free issue of the urine.

The first cafe constitutes a species of malformation, at tended with the greatest urgency, and which indeed admits of no delay of that operation by which the conjoint parts are to be separted. The kind of raphe, situated where the natural opening ought to be, should be immediately sought for, and here the requisite division of the parts is to be made, the incisions being carried to the necessary depth, yet always with a cautious hand, left an opening be made into the bladder, or rectum. Concretions of the labia and ymphæ together may be the consequence of ulcerations of these parts; but the closure of the vulva is then never complete. The frequent evacuation of the urine separtes the parts; and, if not capable of preventing their union entirely, it is at least sufficient to maintain an aperture opposite the meatus urinarius. The narrowness of the external opening, however, may obtrude the free discharge of the urine; and urinaiy calculi may even form more or less deeply in the Flushed. Now, without taking into the account other functions of the sexual organs, the motives already explained are quite prehizing enough to make the removal of the de- formity right and advisable.

Before the age of puberty, no inconvenience can arise from the Flushed being completely shut up by the hymen, or some other analogous membrane. But, at this period, the menstrual blood collects first in the Flushed, and then in the uterus. Severe periodic colic pains, of gradual dure- tion of the uterus, the absence of the menses, impairment of the health, a variety of nervous complaints, and some- times even inflammatory symptoms, which recur, or are exacerbated periodically, afford strong presumptive grounds for suspecting an imperforation of the Flushed. More in- formation may be acquired from a careful examination of the parts. In the greater number of instances, the membranous septum is dilated with the menstrual blood, and even sometimes protrudes from the vulva, in the form of a browish, elastic, fluctuating tumour. Almost an immediate flow has been often put to alarming symptoms of long duration, by making an incision through the membrane causing the obstruction. A crucial wound will be sufficient, with the use of a ligature of the membrane away; but we are recommended not to neglect to keep the newly divided parts sunder for a few days, by means of a tent, or a doffil of lint.

Labours are sometimes so difficult, and attended with such injury, that inflammation, and even ulceration of the Flushed, may be thus produced. These effects may be fol- lowed by considerable contractions of this canal, arising from the shrinking of the cicatrices. However, such a case is not what we have now to consider, our remarks being at present restricted to examples in which the Flushed is alto- gether impervious.

The os tinaee may be entirely obliterated by congenital malformation, the effects of difficult labours, or any other circumstances producing inflammation in the part. In all these cafes, menstruation and conception are rendered im- possible, and a train of phenomena is observed, resembling those of the congenital imperforation of the vulva and Flushed. But the os tinaee may become closed, from some accidental cause, subsequently to conception, and then the defect cannot be known until the period of delivery. In this last case, it is highly important to ascertain correctly whether the orifice of the womb is really obliterated; or whether an obliquity of that organ, or some other derangement of it, may not impose upon us?

The re-establishment of the natural opening is always in- difpenable, and it is materially facilitated by the dilated state of the uterus. The operation can be most conveniently done, either with the instrument called a pharyngotomus, or a curved bistoury, which has a cutting edge that extends only a short distance from the point. See Delpech, \textit{Précis Élémentaire des Maladies réputées Chirurgicales}, tom. 1, p. 497, 8vo.

VAGINA, Prolapsus of, denotes, in \textit{Surgery}, a species of \textit{bearing down}, arising from a protrusion or defect of the Flushed. The Flushed is liable to two kinds of prolapsus. In one case, all its tunics are included in the protrusion, and at the same time that the part falls downwards, it be- comes inverted. In the other example, it is only the relaxed lining of the Flushed which defends and makes a protrusion.

The first species of prolapsus Flushed is subject to varieties. For instance, sometimes the whole circumference of the orifice falls down; sometimes only a portion of one of its sides. In the first event, the prolapsus forms a cylindrical tumour, which consists of all the coats of the Flushed, pre- senting an opening at its lower termination, and having an external covering, which is composed of the internal lining.
of the vagina. But when the protrusion comprehends only a portion of one of the sides of this tube, the tumour occurs in the form of a cul-de-sac, which can be put back into the vagina with the finger or probe, and the lower end of which is without any aperture. The following differences are also remarkable in cases where the lining of the vagina constitutes the prolapsus. In some instances, the lining of the whole circumference of the part protrudes in the form of a cylindrical swelling, confining of a duplication of that coat. In other examples, the membrane lining the vagina is relaxed and elongated only at one or more particular points, and produces one or more external swellings of the cul-de-sac figure. This last case is liable to be mistaken for polypi of the vagina.

The possibility of a prolapsus of the whole of the vagina, together with all its coats, has been doubted by Sabatier and Levret; but, as Richter conceives, without any real foundation. If, as the latter author observes, it is the inner coat of the vagina to separate from the external with which it is intimately connected, an event which every body admits as happening in the second kind of prolapsus vaginae, why should it be impossible for the whole of this tube, together with all its coats, to be separated from the surrounding parts, to which it is not so closely adherent? Sometimes the rectum, inclusive of all its coats, forms what is termed a prolapsus ani, and why may not the vagina be displaced in a similar manner, since it must be much more liable than the rectum to be propelled downwards in the violent straining which takes place during parturition? Richter asks, whether every prolapsus uteri is not accompanied with such a displacement of the vagina? Cashes are upon record, where the prolapsus of the vagina happened all on a sudden, in consequence of falls, the slipping of a horse, &c. (Hoin, Levret, Journal de Médecine, tom. xl.) Here it cannot be supposed, that the cafe was merely a protrusion of the inner coat, which can only be gradually relaxed and elongated. Lastly, instances in which the prolapsus of the vagina was several inches in length, have been gradually reduced by the use of external pressure. (Hoin.) How can we imagine, says Richter, that such cases could proceed from any degree of relaxation, to which the membranous lining of the vagina is liable?

It must be acknowledged, however, that this species of prolapsus is much less common than the second kind; that when it occurs, it is generally as a consequence of a prolapsus of the uterus; and that it cannot easily happen at all, except about the time of delivery. A prolapsus of the inner coat principally occurs in married women who have had many children, and been frequently troubled with flor albus. It has, however, been occasionally met with in young unmarried females. The prolapsus of a particular portion of the inner coat of the vagina, is generally the consequence of a hernia in this part; but sometimes in cases of filepity, a portion of the vagina, containing fluid, protrudes in the form of a cyst, or faec.

When the whole circumference of all the coats is involved in the prolapsus, if a finger, or probe, be introduced into the cylindrical tumour, which the patient is convinced has been found to be situated closely behind the external pudenda; for this sort of bearing down is always attended with a displacement of the womb, in the direction downwards. In many instances, particularly when the prolapsus has taken place suddenly, and is quite recent, the patient experiences a variety of complaints about the bladder and rectum, and the evacuation of the urine and faces becomes more or less interrupted. That the protrusion comprehends all the coats of the vagina, is frequently quite manifest from the thickens of the cylinder. Also, when the accident has occurred suddenly, or it can be easily reduced; there is always reason to conclude that the prolapsus is of the preceding description.

The prolapsus of the inner membrane of the vagina generally arises gradually, and often as a consequence of a long continued flux albus. It either does not admit of reduction, or, if reduced, it lies in the vagina, and fills its cavity. It has very little effect upon the uterus itself, which usually remains in its natural position, and it seldom produces any difficulty in the evacuation of the urine and faces. When only a part of one side of the inner membrane of the vagina is relaxed, elongated, and protruded, the swelling can be pushed back into the vagina with the finger, and thus the nature of the complaint becomes manifest. The prolapsus, arising from a hernia in the vagina, can only be ascertained by attending to the symptoms which characterize this sort of rupture, and which are noticed in the article Hernia.

A prolapsus of all the coats of the vagina, while it is small and recent, can be reduced by pressure without difficulty. But the thing which demands the greatest care, is to hinder a relapse. This is accomplished by the employment of a pessary, and the use of astringent applications.

When, however, the last species of prolapsus has exlicted a long while, its reduction is more difficult; for the vagina, after it has remained displaced a certain time, begins to be affected with swelling and induration. According to the reports of Hoin and Levret, a large protrusion of this kind, ten inches in length, was so diminished by keeping the patient in variably confined upon her back, that in the course of a month the rect of the tumour admitted of being reduced. Indeed, as Richter observes, there can be little doubt, that the treatment which has been advised by some authors for the diminution of very old enormous omental ruptures, would here be equally applicable; viz. long confinement in bed upon the back, with the buttocks somewhat elevated; continued, well-directed, external pressure; a very low diet, and repeated mercurial irrigations. By such means, no doubt, the swelling might be in many instances sufficiently lessened to admit of reduction.

During the state of pregnancy, a prolapsus of the fore coming kind may be attended with considerable embarrassment, and even danger. In one case, where such a prolapsus, five inches in length, took place during labour, it became necessary to turn the child, and the displaced vagina was also lacerated. The woman, however, recovered. (Pitich, Journal de Médecine, tom. xxxiv.) In another case, where the prolapsus became as large as a man’s head at every return of the labour-pains, the practitioner succeeded in holding the parts back, while the woman was delivered with the aid of the forceps. (See Loder’s Journal, 1 b. p. 450.) When this is impracticable, it is necessary, according to Richter, to make an incision through both sides of the prolapsus; a proceeding, lays he, to which the practitioner may the more readily make up his mind, inasmuch as the parts have even been lacerated, without any ill consequences, as we have already related.

The prolapsus of the inner membrane of the vagina, while small and recent, may perhaps be removed by astringent applications. When, however, it is of long standing, indurated, and of large size, much expectation of succour from this treatment cannot be entertained. Richter fees no reason why, in such a case, the redundant relaxed part should not be cut away, especially when the disea is accompanied with ulceration, and other serious complaints. As he observes, there can be no doubt that a prolapsus of the inner membrane of the vagina, when limited to one part of this
VAG

this canal, may always be safely extirpated either with a knife or a ligature. Richter's Anfanggr. der Wundarzney-
kunst, b. 7. Vierte Kapitel.

VAGINÆ. Femoris Tendo, in Anatomy, a name given by Albinius to a muscle in the thigh, called by others the mem-
branous, and the myotus fascia late; and by some myotus APONEUROTICUS, which see.

VAGINÆ. Uteri Splintier. See Generation.

VAGINA Poliærum, in Botany and Vegetable Phylology, the sheath of the leaves, (see Leaf and Sheath,) most peculiarly observable in grages, and their allies, confines of that part of the leaf which is below the stipula, by which it is crowned. The Vagina embraces the stem, or fraw, more or fefs closely. Its inside is usuallly quite smooth, and polished, while the outside is generally ribbed, rough, or hairy, though commonly less so than the leaf itself. The pubescence in some instances is directed contrariwise to that of the leaf. In molt grages, particularly the corn tribe, the sheaths of one or two of the uppermost leaves are much diluted, serving the important purpose of protection to the young panicle or spike of flowers. A singular theory respecting the cause of fmut in grain was, many years since, published by the Rev. Henry Bryant, of Hempf, Norfolk. (See SMUT.) The minutest was, by this writer, attributed to an accidental tightness in the summit of the sheath of the leaf, by which the young ear was, in a manner, strangled; an hypothesis totally insufficient to account for the phenom-

The term vagina is, in like manner, applied to the lower part of the foliage of the Crocus, the Snow-drop, and various other plant's leaves related to one or the other, in which the leaf tapers down into a sort of sheathing footstalk. But it is erroneously exemplified by professor Willdenow, in his Principles of Botany, by the genus Polygonum, whose cylin-
drical membrane, attached to the inner side of each foot-
stalk, and surrounding the stem above every joint, is a real sheathing Stiplua, fle that term; the footstalk being in-
terposed between it and the leaf. So in Spermacetes, and other plants of the extensive and various order of Rubiaceae, the membranous intratefilaceous stipula must not be taken for a vagina, though it be connected, ever so closely, with the footstalks at each side; because the analogy of molt plants of that order shew it to be a real stipula, which from its fitution, and the varieties in its fform, structure and afpact, is of peculiar botanical importance.

VAGINALIS GUL., in Anatomy, the mucular flâma-
tum surrounding the mucous membrane of the esophagus. See DEGLUTITION.

VAGINALIS IT}}, the serous membrane surroun-
ding the tefticle, and forming the bag, in which it is included. There is also a covering, composed of condensed cellular membrane and the fibres of the cremalfer, which surrounds the spermatic cord and the testis with its membranes. This is called tunica vaginalis communis. See GENERATION.

VAGINALIS, in Ornithology, a genus of the order Gralla of birds, of which there is one species, var. the V. alba, or white sheath-bill of Latham. Found in New Zealand, and other islands of the Southern ocean.

VAGINARIA, in Botany, named from vagina, a sheath; because the ftem is clothed with leafless sheaths. Pursh 58. This genus is adopted by Pursh from Perfonn, and its distinctive character confines in the seed being surroun-
ded at the base with three scales, and three intermediate brilles. One or the other of these parts doublefs origen-
ates in the three flamen. The fignum, moreover, are faid to be three.

The only species mentioned by Pursh is V. Richardi.
V A N

"Alma parents Indica deum, cui Dindyma cordi,
Turrigerneque urbes, bijugique ad frerna leones."

Dryden changes her lions into tigers.

"Hear thou great mother of the deities,
With turrets crowned, on Ida's holy hill,
Fierce tigers reined and curbed obey thy will."

Pitt, however, in his invocation, restores the tigers.

"Great guardian queen of Ida's hills and woods,
Supreme, majestic mother of the gods!
Whose strong defence proud tow'ring cities share,
While roaring lions whirr thy mighty car."

In most languages of the East, it may be observed, the same word means both lion and tiger. The Greeks or Romans, borrowing the attribute from the East, may easily have misconceived its name. (See Cybele and Parvati.) It might be shown that most of the mystical ceremonies practised by the Welfern heathens in honour of the goddess Cybele, were, and are, common also in India in honour of Parvati. The peacock is likewise sacred to the latter, and is, as we shall presently notice, the vahan of one of her family, Kartikya, otherwise called Komara; and the being deemed his fakti is called Kaumari, and is likewise so conveyed.

Having thus seen that the vehicles of the three great powers composing the Hindoo triad are severally the fawn, the eagle, and the bull, we proceed to notice how the inferior deities are accommodated.

Surya, or the sun, rides sometimes a lion, but generally in a golden car drawn by seven tigers, or by one horse with seven heads. The horse is sometimes named Ochiferova (which fee); but we are in some doubt if correctly. Soma, the moon, is drawn in his Evil car (the moon is mackulline in India) by an antelope. Pavaka, the god of fire, rides an ardent ram. Kama, the Indian Cupid, rides a luri, or parrot. Varuna, genius of the waters, beholds a fish, as does also Ganga, the Ganges, primal goddes of rivers. Ganja, the god of prudence and policy, has an elephant as his vahan, it being supposed the animal of greatest foresight: a rat is also deemed a very sagacious animal, and Ganja is sometimes seen so mounted. He is reputed the eldest son of Parvati, and is otherwise named Polkar; which see. Kartikya, her second son, or rather her lord's son, is borne by a peacock, as before noticed. Indra, regent of the firmament, has a three-trunked elephant, named Iravat. Pavaka, a son of Siva, rides a buffalo, sometimes a dog. Vayagravati, and Vrishnidevati, are names of Parvati and Siva, meaning tiger-mounted, and one who rides a bull.

Ailroglers have mounted the reft of the planets, as well as the sun and moon. Mangala, or Mars, on a horse, sometimes on a ram: his fiery nature connects him sometimes with the igneous Pavana, who rides the latter animal. Boodeh, or Mercury, being by some accounts a manifestation of Vishnu, at any rate bearing the name with a disputed avatar or incarnation of that god, shares his vehicle, and the planet is mounted on an eagle. Vrishniraji, or Jupiter, on a boar. Sakra, or Venus, on a rat, sometimes on a camel. The flow'ring Sanee, or Saturn, on the heavy elephant, or ill-omened raven. Rahu, the dragon's head, on a tortoise or owl: and Kebu, the tail or descending node, on a frog.

The word vahan is usually pronounced as one broad syllable; and it has been surmised that the English van and sain may bear some etymological affinity to it.

VAHARA, in Geography, a town of Arabia Deferta; 150 miles W. of Jamama.

VAHINGEN. See Vathingen.
coloured plates, not highly finished, but expressive and correct. The principal object of this work was, in the first instance, to illustrate Forckell's discoveries, very incorrectly displayed in his own pompous Flora; and the materials for the exemplification of which are, it seems, but partially and imperfectly preferred. Vahl's Symbols are moreover enriched with descriptions and figures of new or rare plants, from various other sources. The communications of the author's numerous correspondents, particularly of Von Rohr and others from the Danish West Indian colonies, are added to the acquisitions of his own journeys; and the whole forms a large body of valuable practical information. His Elogio Americana, published in 1796, are a sequel to the Symbols, on the same plan, but devoted to American plants.

In 1799 and 1800 professor Vahl received the pecuniary support of the Danish government in a second tour to Holland and Paris, for botanical purposes; chiefly, we presume, with a view to the composition of a great work, long in his contemplation, on the model of the Linnaean Species Plantarum. Of this he just lived to publish the first volume, under the title of Enumeratio Plantarum, in 1804, in 8vo, including the classes Monandria and Diandria. The second, containing only the Triandria Monogynia, was published by his widow in 1805. The copious introduction of new species, the ample original descriptions of the well-known families, and the judicious remarks, render this work far superior to any other of its kind, giving it all the merit of an original performance. Besides the addition of the essential generic characters, as in the Systema Vegetabilium of Linnaeus, Vahl's Enumeratio is enriched with a copious description of the peculiar habit of each genus, after a plan first introduced by Gouan, in his Flora, as well as Hortus Monspeliensis, and which Linnaeus justly commended, as leading the way to improvement in natural classification. Nor must we pass by, without commendation, the excellent generic and specific index to each volume, an appendage of whose value we are seldom duly sensible, but from its inaccuracy or omission in other inferences. The neglect, or bad construction, of indexes, and the omission of references to pages, are defects of the modern French school, which may be avoided by any botanical writer, even of the most humble scientific pretensions, and which the most learned ought not to neglect. The sequel of professor Vahl's last publication, as far as concursus gralliæ, was reported to have been left by its author in considerable forwardness, and was, if we mistake not, announced for publication. Something to this effect is found in the preface to the second volume; but we know not that any part of these valuable materials has appeared. The botanical professorship at Copenhagen was conferred on Mr. Vahl, after his return from his second visit to France, but he lived not long to enjoy his well-merited fame and distinction. He died on the 24th of December, 1804, in the 54th year of his age, leaving a widow and six children. His library, herbarium, and manuscripts were purchased by the king of Denmark for 3000 dollars, about 675l., besides an annual pension of 400 dollars, or 96l., to his widow, and of 100 dollars to each of his children. It was intended that the above-mentioned manuscripts, including a finished treatise on the class Syngenesia, should be edited by the successor of professor Vahl, Mr. Horneuman, to whom the continuation of the Flora Danica was likewise confided. We are not informed of the progress of either.

Besides the botanical writings of professor Vahl, he has published some zoological papers in the Danish language, especially relating to birds; and has described a fish, constituting a new genus, by the name of Holocentrus lenticigerous, in the third volume of the Transactions of the Natural History Society of Copenhagen.—A more detailed review than we could here undertake, of the first volume of the Enumeratio Plantarum, may be seen in Sims and Konig's excellent Annals of Botany, v. 2. 179, where Mr. Konig has noticed every new article of information, and corrected every incidental mistake, with commendable accuracy and knowledge. We have already advanced an opinion similar to that of this able critic, respecting Vahl's removal of the Linnaean Species Plantarum, fee that article, from the class Monandria to Gynandria; a measure barely to be excused by our supposition, and not at all to be justified by any alleged reason.—Vahl's Works. Sims and Konig's Ann. of Bot. v. 1 and 2.

VAHLIA, in Botany, received that name from Thunberg, in honour of his contemporary professor Vahl. (See the last article.) The same genus was originally defined by the great Linneaus to commemorate Jean Jacques Rousseau, as appears by specimens in the Linnaean herbarium, marked Roffa capensis; but he did not live to publish this genus, which his son, through inadvertence probably, introduced into the Supplementum Plantarum, by the name of Russellia, that fee article and Rousseau. Those names being otherwise appropriated, the Vahlia is finally establisht.—Thunb. Nov. Gen. 36. Schreb. 176. Wild. Sp. Pl. v. 1. 1534. Mart. Mill. Diet. v. 4. Julii. 318. Lamarck Histoire t. 135. (Rufella; Linn. Suppl. 24. Murr. in Linn. Syrf. Veg. 14. 1796.—Clafs notor. Pentandria Dizygia. Nat. Ord. Calycantheme, Linn. Onger, Joff. Gen. Ch. Cal. Partheni superior, of five lanceolate, acute, concave, spreading, permanent leaves. Cor. Petals five, ovate, concave, spreading, undivided, not half so long as the calyx. Stam. Filaments five, inserted into the calyx between the petals, and full as long as its leaves, thread-shaped, erect; anthers incumbent, oblong, with four furrows. Pijf. Germen inferior, roundish; styles two, thread-shaped, slightly spreading, longer than the flaments, stigmas fimple, obtuse. Perc. Capsule ovate, abrupt, marked with five elevated lines, and crowned with the calyx, of one cell and two valves. Seeds numerous, minute.

Eff. Ch. Calyx of five leaves. Petals five, alternate with the flaments. Capsule inferior, of one cell and two valves, crowned with the permanent calyx. Seeds numerous.

X. V. capensis. Cape Vahlia. —Thunb. Nov. Gen. 36, with a plate. Prod. 48. Wild. v. 1. (Rufella capensis; Linn. Suppl. 175.)—Gathered by Thunberg, in sandy ground, near the valley of Verkeerden, at the Cape of Good Hope, flowering in December. It has not yet been brought to England. The root is woody and perennial. Stems several, herbaceous, erect, a span or more in height, simple or branched, leafy, clothed with short, soft, prominent, vilose pubescence, like all the rest of the herbage. Leaves opposite, fifele, linear-lanceolate, entire, pale green, an inch or inch and half long. Flowers yellow, in small, axillary, nearly fifele, tufts, about the upper part of the branches, accompanied by a small lanceolate bracteæ. The petals and filaments assume a violet hue when dried.

VAHNI, in Mythology, a name of the Hindu regent of fire, who is more commonly called Pariaksha; which see. A similar name, usually indeed written Vini, is given to Sarawari, confort of Brahmu. See SARAWANI and MARUT.

VAIDYA, the name of a respectable class of Hindous, who follow the profession of physicians. Individuals of different religious sects are comprised in this denomination. (See SIVIT of Hindus.) Sir W. Jones, speaking of the Vaidyas, says, "they have more learning, with far less pride, than any of the Brahmins: they are usually poets, grammarians, rhetoricians, and moralists; and may be esteemed, in general, as the most virtuous and amiable of the Hindous."
VAIGAL, in Geography, a town of Hindoostan, in Golconda; 20 miles S.S.E. of Comonbat.

VAIGAR, an island of Russia, in the Frozen ocean, on the N. side of the straits of Vaigatskoi, about 24 miles in length, and about 8 broad. N. lat. 75° 30'. E. long. 52° 24'.

VAIGATSKOL, PROLV, or Straits of Vaigate, between Nova Zembla, and the continent of Russia.

VAIGA, a town of France, in the department of the Mayenne; 12 miles E. of Laval.

VAIHEND, or SCANDERBE, a town of Perânia, in the province of Segesta, anciently Alexandria; 50 miles E. of Arokhaie. N. lat. 31° 10'. E. long. 60° 40'.

VAI-HIO, in the Materi Medica, a name used by some authors for a kind of lignum aloes, which is brought from China, and is very black, and scented.

VAIJAYANTJA, the name of a palace of the Hindoo god Indra, situated in a celestial city named Amrovatia. (See Indra.) Another of his abodes is called Sitanta; which see. See also VAIKONTHA.

VAIKONTHA, the paradise of the Hindoo god Vishnu. It does not precisely appear whether this abode is celestial, terrestrial, or subterranean. Sometimes it is described rather of the latter sort in a sea of milk, called Kirrafamudra, where Vishnu is pictured reposing on a mighty serpent named Sehsa, accompanied by his delightful confont Lakshmi. (See Lakshmi and Sesha.) A commentator on a Sanscrit work entitled Kthre Nrmana, the most ancient perhaps of Hindoo geographical books, places Vaikontha in the Frozen ocean: a circumstance that would have afforded curious confirmation to an idea of Buffon and Bailie as to the site of Eden, had these eminent men been aware of it: an idea more ancient, indeed, than the day of these philosophers, as Pottellus had a familiar notion. See Paradise.

Several of the Hindoo deities have refidences especially assigned them, by European writers usually called the paradise of those deities respectively; thus Indra's abode is called Sitanta, Svarga, and Vaayayanta; that of Siva, Kiiafa; that of Varuna is Subhallati. Generally, these palaces or places of the Hindoo gods are described as situated on a mythical trufurcated hill named Meru, to which word we refer the reader for some of the extravaganzas connected with the Olympa of the Hindoos.

VAILATA, in Geography, a town of Italy, in the department of the Adda; 18 miles E. of Milan.

VAILAC, a town of France, in the department of the Lot; 15 miles N. of Cahors.

VAILLANT, JEAN FOI, in Biography, an eminent antiquary and medallist, was born at Beauvais, in Picardy, in the year 1632. His maternal uncle, to whose care his education was entrusted, designed him for the profession of the law; but inheriting the fortune of this relation, he devoted himself to the study of physics, in which faculty he took a degree. Having accidentally gained possession of a box of medals, he relinquished his medical pursuits, applied to anciennarian and medallic researches, and soon formed a valuable cabinet, to the ineracle of which his various travels very much contributed. In one of his excursions for this purpose, he was attacked by an Algerine corsair and carried into slavery; and after his release, he was on another occasion attacked by a Tunisian; and in order to secure fifteen or twenty gold medals which he had in his possession, he swallowed them, and in process of time nature relieved him of his burden, which he disposed of to an amateur with advantage.

On his return to Paris, he distinguished himself by various dissertations on medals. He was thus recommended to the court, and employed on a commission for the protection of the same objeet. His ardour urged him to visit Egypt and Perânia, and he was recompened by obtaining a rich cargo of medals. To the memoirs of the Academy of Insigniferences and Belles Lettres, of which he was a member, he communicated several valuable papers on his favourite subjeet: his reputation gained him the post of keeper of the duke of Maine's cabinet of medals; and even at Rome he was so highly esteemed, that he obtained a dispensation from the pope to marry successively two sisters. His private character was highly estimable. His labours were terminated by death in 1706, at the age of seventy-four years. The titles of some of his principal works, independently of several separate dissertations, tending to illustrate medallic science in its connection with history, are as follow: "Numismata Imperatorum Romanorum," 1674–40, of which an enlarged edition was published by Baldini at Rome in 3 vols. 4to. 1743; "Sceurcadarium Imperium, five Historia Regum Syrie ad fimem Numismatum accommodata," 1681, 4to. "Seleclata Numismata Antiqua ex Musco Petrse Seguini," 1681, 4to. "Numismata Erea Imperatorum, Augusturum et Cesarum in Colonii, Municipiis, &c." 2 vols. fol. 1680; "Numismata Imperatorum, &c. Grceca," 1698, 4to. "Hitoria Tolomeorum Egyptiae Regnum ad fimem Numismatum &c." 1725, 4to. "Achæmenidarium Imperium, &c." 1725.

The son of the preceding, viz., JOHN-FRANCIS FOI,

VAILANT, born at Rome in 1665, was instructed by his father in medallic science, and was graduated for the profession of physici. He published several dissertations on medals in the Memoirs of the Academy of Insigniferences, of which he was a member, and also a dissertation on the "Die Cabiri." His life terminated in 1708, in the 44th year of his age. Morer.

VAIEILANT, SEBASTIAIN, a distinguished French botanist in the early part of the 18th century, was born May 26th, 1669, at Vigny, near Pontoise, being the eldest son of a shopkeeper in that town. He is described as having, like many other botanists of eminence, imbibed a taste for plants at a very early age, and even before his sixteenth year to have cultivated, in a little garden of his own, with which his father indulged him, all the plants he could collect from the country around, or from the gardens of his neighbours. We can hardly wonder that his illustrious biographer Boerhaave, should, as a physician, delight also to record an instance of Vaillant's early medical talents, in curing himself clandestinely of an intermittent fever, with]
when he removed to Evreux in Normandy, to place himself under another surgical teacher. Here he gained the good opinion of the marquis De Gouvill, captain of the royal fulfliers; who engaged M. Vaillant as surgeon to his company, with the rank of lieutenant. Thus the peaceable botanist, the organist of a nunnery, became a soldier; encountered the dangers of a campaign; came off with honour and safety; performed the last duties to his patron, who fell in the battle of Fleurus, July 1, 1790; and after visiting several towns in Flanders, returned to Evreux, which he quitting next year to pursue his studies, with more advantage, at Paris.

On the theatre of the metropolis, the talents of our young candidate for scientific distinution and improvement found every possible encouragement and advantage. Here, although the practice of surgery seems to have been his first object, probably with more direct views to a maintenance; he soon refined every other pursuit for the first passion of his youth, and botany henceforth engaged all the faculties of his mind. He soon discovered the science to be just then in a state to make the scientific fortune of a man of enterprise and genius. Botany had, for some time, become a leading taste among persons of rank and opulence, by which the materials for its improvement had accumulated, but the advancement of the science itself had not, by any means, kept pace with its riches. Men of the first rank in human intellect, who had fixed everlasting landmarks in other departments of knowledge or literature, though they had done much in botany and other branches of natural history, had but imperfectly accomplished any great systematic plan of technical distribution or discrimination, without which mere practical knowledge is but an indigested chaos. The lucid order, and rapid perceptions, of Tournefort's mind, with whom Vaillant was soon familiarized, as one of the most diligent pupils, could not but strike him with peculiar force, while supplying light of which he so fenibly felt the necessity. But as a lamp, however brilliant, serves to betray the surrounding darkness in an unlimited unexplored cavern; so the achievements of Tournefort, like those of his predecessors and contemporaries, tended as yet to display more of the arduous nature of their undertaking, than of its perfect accomplishment. The common herd of their pupils and admirers, are like the animalcula on a blue-bottle fly; who, as a witty writer observes, "doublet's think their fly the greatest and the bluefet object in the universe," and they can only go where it pleases to lead. But Vaillant, though adoring the genius of Tournefort, and loving his true amiable social qualities, could not but perceive the imperfect execution of much of his plan, and detected at once perhaps many of those faulty principles, which have gradually displayed themselves to subsequent observers.

That he had performed an Herculean task, could not be denied, but that much remained to be done, was but too evident to an acute observer. The great preceptor soon became aware of the talents of his pupil; he held him up as an example to his colleagues, and adopted him as a coadju- tor in the elucidation of the plants about Paris.

After refiding some time at Neully, Vaillant was chosen secretary to Father de Valois, a Jefuit, confessor to the younger branches of the royal family. Here he became known to M. Fagon, first physician to the king (see FAGON); who finding him investigating and arranging mollusks, was much struck with the specific definitions, written in Vaillant's beautiful hand under each, as they fill remain. Fagon soon afterwards took him under his imme- diate protection, promised to further his wishes of travel- singing, and invited him to reside at Paris, till he could procure him an appointment of that kind from the king. This object however was soon given up. Vaillant became secretary to his patron, and was taken into his house. Having free access to every part of the royal gardens, he enriched his own herbarium, and thofe of Fagon and Tournefort, with exotic, as well as native, specimens, which he prepared with skill and dexterity. He likewise added daily to the collection of living plants, and became, under M. Fagon, the director of the Jardin du Roi. At length, in 1708, this faithful and disinterested friend resigned, in favour of Vaillant, his own appointment, of professor and subde- ministrator of plants in that garden, which Tournefort had repeatedly solicited from him in vain. To this great benefit, which Vaillant was anxious, by all possible exertions, to defer, was added the construction of new and ample hot- houses, at the wish of the new professor, and the formation of a splendid cabinet of Materia Medica. His lectures on botany, and especially a "discourse on the structure of flowers," since published, were received with great applause. He was admitted, without solicitation, into the Académie des Sciences; it is even said that he was defirous of declining this honour, which his friends had great difficulty in persuading him to accept. A piece of self-denial, or excessive modesty, the reasons for which are not very apparent.

In the intervals of his other occupations, Vaillant visited, at different times, various parts of France, for the sake of botanical enquiries; but it does not appear that, except his martial expedition into Flanders, he ever extended his travels beyond the limits of his native country. His foreign correpondence, nevertheless, was very extensive, and by this means he greatly augmented the riches of the royal garden.

Notwithstanding Vaillant's original admiration of Tour- nefort, and his personal intimacy with that great and amiable man, of whom we have given an account in its proper place; he very soon, as we have already hinted, became diffatisfied with some of the fundamental principles of his preceptor. He adopted and clearly explained the fexes of plants, and consequently asserted the importance of the ftamens and pistils, in a physiological as well as systematic point of view. This was the subject of his discourse above-mentioned, delivered June 10th, 1717, before his pupils at the Jardin du Roi. On the 17th of December, 1721, he read a professed criticism on the method of Tournefort, before the Academy of Sciences, printed in the Memoirs of that learned society for 1723. We regret to find, in both these performances, much disrespectful mention of his illustrious predecessor; which has been but too severely retailed upon himself, by the neglect which his own just pretentions have received from his countrymen. To have been more in the right than Tournefort, was of itself a sufficient offence; and to have asserted his opinion with alacrity and indecorum, served only to authorize part of the hostility which he incurred. Whatever progress Vaillant had made towards the foundation of a new fytem of classification, he did not live to lay it, in any regular form, before the public. His active life was devoted to the acquisition of materials, which he had no opportunity of employing. His difficulties, doublets, increased with his progres. What parts he did perfect are admirably done; particularly his elaborate exposition of the genera and species of the fynegenous, or compound flowers, published in the Memoirs of the Academy, between the years 1718 and 1722. But the observations and en- quiries of this great botanist had been extended to various other classes and families of plants, though they never ripened into any complete systematic work. The writer of the present article has long ago recorded,
VAILLANT.

v. 1. 243, that the herbarium of Vail1ant, preferred at Paris, displays astonishing instances of his profound knowledge and acute judgment, with respect to the genera, species, and synonyms of plants. The specimens are copious and fine, especially of Tournefort's oriental plants, which are far more perfect and abundant than in that author's own collection. These were obtained by Vail1ant, either from Gaud1efcheiner, the travelling companion of Tournefort, or from others who subsequently purified the same track. We know not that any competition, or open controversy, arose between these distinguished men, during Tournefort's life, who dedicated a genus to his pupil. (See Val1antia.)

Vail1ant is reported to have critically examined the whole of the Institutiones Rei Herbariae, as soon as that great work appeared, in 1700, and to have communicated his remarks to M. Fagon. This intelligent friend declared, that though in the morning he had admired the performance of Tournefort, he could not withhold his approbation of Vail1ant's remarks by the light of mid-day. Tournefort died in 1708, and Vail1ant's first public attack, except what might incidentally fall from him in lecturing, was made, as we have said, in 1721. We are informed thus much of the principles and aims of Vail1ant, that, having established the doctrine of the sexes of plants, he proposed to distinguish his classes by the parts of the flower, and his genera by characters taken indifferently from the whole plant, according as might best suit his purpose. In this latter respect, he was but returning towards the dark knfs of former ages, and we can have nothing to regret. His bold and most meritorious attempt respected nomenclature. He wished to distinguish every genus by an expressive name, by which its essential characters might at once declare themselves. He flattered himself with extending the same principle to every species of plant, so that a word or two might give its name and character together. The learned reader will be aware of the similarity of this scheme to that of Rivinus, and of its failure, even on the very limited theatre of that writer's scientific operations. (See Rivinus.) He will also recollect that it succeded with Linneus, only because the latter had the good fortune, or good sense, after discovering that these two objects, of nomenclature and clear discrimination, were in themselves incompatible, to reconcile both by division.

While these pursuits engaged the mind of Vail1ant, his bodily constitution was yielding to the fatigue he had too long imposed upon it. Exposure to cold and wet, and to the night air, in many of his botanical rambles, did but ill suit a delicate frame, prone to pulmonary diseases. In proportion as he perceived a decay of strength, he only exerted himself the more, to complete the undertakings which had been the object of his life, and which might have demanded something like a patriarchal term of existence. He suffered for about four years under a consumptive attack, in the course of which he expectorated little hard concretions, amounting, says Boerhaave, to above 300, and at length expired, in a tranquil manner, on his birthday, May 26th, 1722, aged fifty-three. He was tall, well-proportioned, and active; of an open generous disposition, hating flattery, and misanthropic even of his own praise. The character of his criticisms upon Tournefort is rather, as we should hope, to be attributed to blunt sincerity, than to any portion of jealousy or envy, of which his conduct, in other infinences, betrays no traces. He had the satisfaction of soothing, by the most affiduous care, the sufferings of his friend Fagon, who underwent an operation for the stone at a very advanced age; and who would gratefully have ceded to Vail1ant, as a recompense, the profits of an impoll which he enjoyed upon mineral waters. This Vail1ant had the still higher gratification and honour of declining.

His rich and splendid herbarium, comprehending that of M. Fagon, which had been given him by the son of his old friend, as well as his own cabinet of various natural curiosities besides, were purchased by the king, Louis XV., and deposited in the museum at the Jardin du Roi, where they have fortunately remained in safety amid the wreck and the restoration of a kingdom. His library was left in the hands of his widow, whose name was Françoise Nicole Bof1net. Vail1ant married this lady on the 14th of October, 1701, and enjoyed with her twenty-one years of great conjugal happiness, but had no offspring.

The greatest object of temporal concern, on his deathbed, was a work on the plants around Paris, which he had long been preparing, and for which Claude Aubriet, the inimitable botanical draughtsman of that day, had made, under the inspection of the author, above 300 drawings. Anxious that his labours should not prove altogether fruitless, Vail1ant wrote, a year before his decease, to the famous Boerhaave, requesting him to take this orphan work under his protection. To this request, backed by their mutual friend William Sherard, Boerhaave readily acceded. Vail1ant declared that he had particular and very strong reasons, which he could not explain, for making this request. He probably feared that his countrymen, veneration of Tournefort, who no longer flood in their way, might not be over anxious to preserve the relics of his rival, whose fame and activity had so lately clothed with their own. Whatever were his feelings on this subject, Vail1ant was satisfied with Boerhaave's acceptance of this trust, and awaited his long expected change with the piety and composure becoming a Christian and a true philosopher.

Boerhaave published the work of his departed friend in 1727, under the title of Botanica Parisiensis, making a very handsome folio volume, with thirty-three admirable plates, comprehending above 300 figures, of rare or obscure species, in which the cryptogamic plants are very abundant. The flowers alone of all the Orchis tribe are exhibited; their herbage being so nearly uniform as to be deemed lefs necessary. These figures, though uncoloured, leave scarcely anything to be desired. The arrangement of the work is alphabetical, and its language, except the specific definitions, French, like all the author's compositions. The elegancies of style, or refinements of language, do not seem to have made a part of his studics, and he was rather a scientic than a learned botanist, except what was neccessary for the accurate appropration of synonyms, in which no one, fo far as we have traced his progress, was superior to Vail1ant. Dillenius, a professed and elaborate botanical critic, was undoubtedly, by many degrees, below him. Certain imperfections of this popular work, justly indicated by Haller, arose, as he observes, from Boerhaave's inability to betow sufficient time on the correction of the unfinished manuscripts. Hence many repetitions occur, and some of the figures want references. Following authors have generally cited the beautiful figures, without advertsing to the text; in which, notwithstanding, much may be found worthy of notice, especially all the practical observations, and original descriptions, of Vail1ant himself. We cannot too strongly commend him as a botanist of originality, acuteness and accuracy, who has contributed to the general stock of botanical knowledge, and whose genius, had he lived longer, might have greatly extended the limits of philosophical speculation, on the subject of arrangement. —Vail1ant's Works, and his life by Boerhaave. Haller Bibl. Bot.

VAILLY, in Geography, a town of France, in the department
VAIR, in Heraldry, a kind of fur, or doubling, consisting of divers little pieces, argent and azure, refembling a Dutch U, or a bell-gla$.

Vair have their point azure opposite to their point argent, and the safe argent to the azure.

When there are only two or three vairs, the ancient herals call it great vair; and when there are more, small vair.

Vair is intended to represent a kind of skin, used anciently by the kings of France, in lieu of a fur, and with which the gowns of the prelates a mortier, the counsellors of the court, the heralds' coats, &c. were lined till the fifteenth century.

It was properly the skin of a kind of squirrel, called also in French vair, and in Latin sericeus; which was white underneath, and of dove-colour at top. It is described by Aldrovandus under the name of ferrico vairo, and is the same, according to Geminier, with the mus Pnicus of Aristotle and Pliny; which the Latins call varus or varius, from the variety of its colour. Its two skins, joined together, make the figure of the vair in armories; being naturally whiter than azure.

Vair, Colombiere observes, is the second sort of fur anciently used as a lining of the garments of great men, consisting of little pieces, sewed by the furriers on white skins: and because these pieces were usually blue, those who first settled the rules of heraldry, decreed, that this fur, in its natural blazon, should always be argent and azure. So, if it be absolutely said, such a family bears vair; it is supposed to be argent and azure.

Regularly there must be but four rows or ranks of vair in the shield; if there be either more or less, the number must be specified. The smallest number, being three rows, is called beffroy de vair; the molt, being five or fix, is called menu, or small vair.

The beffroy is also known by the first figure on the dexter side of the escutcheon being always of metal, and in form of a belt; whereas that of menu vair is in shape of a glas.

VAIRA, in Geography, a river of France, which runs into the Var, about 3 miles N.W. of Glandes.

VAIRE, in Geography, a river of France, which runs into the Var, about 3 miles N.W. of Glandes.

VAIRE, in Geography, a town of France, in the department of the Lot; 4 miles N.E. of Martel.

VAIRAMEA, in Mythology, a name of the Hindo god Siva, under which name Siva is usually given to Indra, called Vairaca, meaning lightning or thunder. Siva under this name will therefore correspond with the Jupiter fulminator or tonans of the West. Siva's confort, Parvati, is furnished Vairamur, pronounced sometimes Bajrephari; the initials being so extensively interchangeable.

VAIRAS, in Geography. See Vairen.

VAIRY, Vaire, Parry, or Parry, is applied to a coat, or the bearings of a coat, when charged, or chequered, with vair.

When the colours are argent and azure, or white and blue, it is vairy proper; if bithe otherwise, the colours are to be expressly named; vairy of such a colour or metal. He bears vairy, or, and vert; this is particularly called vair compo$ed. The bearings are likewise said to be vairy, when they are charged with vairs. When chiefs, crofles, paies, feales, &c. happen to be vairy, the number of ranks are to be specified.

Vairy gowns are described, by Julius Pollux, to have been
the habit of the ancient Gauls, as ermines were of the Armenians.

VAIRY-cups, or VAIRY-tarts, or Potent-counter, Counter-poison, is a bearing in heraldry, composed of pieces representing the tops of crutches, or potences counter-placed.

In blazon, the colours must be expressed; as azure, argent, &c.

VAISETTE, Joseph, in Biography, a native of Guillac, in the diocese of Alby, was born in 1685, and entered among the Benedictines of St. Maur, at Touloufe. In 1713 he settled at Paris, and engaged, in concurrence with Claude de V, Vie, of the same fraternity, in the history of Languedoc, of which the first volume appeared in 1730, in folio: and upon the death of his coadjutor in 1734, it was continued by himself, four more volumes having been published, and a fifth being in preparation at the time of his own death. This history is highly commended, on account of both the learning and moderation displayed by the author. An abridgment of this history, in 6 vols. 12mo., was published by Vaiette in 1740; and he was also the author of an "Universel Geography," in 4 vols. 4to., and 12 vols. 12mo., 1755, which at the time of its publication was generally approved. The author's erudition was extensive, and his disposition was amiable, so that he died, much regretted, in 1756. Moreri.

VAISHNAV, the general name of all the different sects of Hindoos who worship Vishnu, either directly or indirectly, through his comfort Lakshmi, or in one of his incarnations called avatars. In the article Sects of Hindoos, we have concentrated the chief of what we have to offer on the subject of the numerous individuals comprehended under the denomination of Vaishnava; which, in its most extended sense, includes considerably more than half of the whole race of Hindoos. The distinction of Saiva, or Siva-Bakht, comprehends the other portion. See SAIVA.

The second plate of the Hindoo Pantheon contains many sectarial marks, or symbols, by which the different sects distinguish themselves generally speaking, horizontal lines on the forehead mark the Saiva, while perpendicular foreheads indicate some sect of Vaishnava. These lines are red, white, or yellow, with different coloured spots over, under, or between them; all of which are said to have some mythological allusion.

VAISHNAVI, in Hindoo Mythology, is a name of the goddesses Lakshmi, the comfort or energy of Vishnu; as such, she is called his fakti. In the different incarnations of Vishnu, Lakshmi accompanied him, either under her own name, or under some other denomination.

VAISHISHKA, in Philosophy, is the name of one of the six Hindoo schools, or sylums. Under the article Philosophy of the Hindoos, we have enumerated the principal schools of that thinking race. The Vaiishikha is a division of the Nyaya, and we refer to the latter word for some notice of the doctrines of its followers.

VAISON, in Geography, a town of France, in the department of the Vaucluse, on the Oueze: before the French revolution the fee of a bishop, suffragan of Avignon: the old town has been long in ruins; 22 miles N.N.E. of Avignon.

VAJRA VA, in Mythology, a name of the Hindoo Plutus, who is more commonly called Kuvera: which see. Vairava, or Vifra, is a name given also to Ravena, half-brother to Kuvera. (See RAVENA.) Vifraa is sometimes called their father, and they are then named Vairavana.

VAISSEAUX ENFLEZ, a term used by the French writers in Chemistry, for the vessels used in distilling in an open fire, or in fad, which do not consist in the common way of a retort, joined immediately to a receiver, but have a receiver with a double opening, and a neck at each end, placed between the retort and the ordinary receiver. The neck of the retort is let into one of the necks of this middle vessel, and its other neck is thrust into that of the receiver; by this means the receiver, into which the liquor is to fall, stands at a greater distance than it otherwise would from the fire, and the vapours are more easily condensed in it by its coldness, while they have also a double or treble space to expand in, and by that means are not so likely to burst the vessel.

VAIVASWAT, in Mythology, a name of Surya, the Hindoo regent of the sun, as noticed in the article SURYA, where he is under this name styled, on the authority of Sir William Jones, "Lancer of the golden ray." The very important deity Surya is frequently called in Hindoo books by the title of Vaivaswat: and those personages who, like the ancient Incas of Peru, are pretended to be of solar origin, are called Vaivaiswata. In the Gita, Krishna says, "This immutable sfylem of devotion I revealed to Vaivasvat, ('or,' says the commentator, 'the fun'), Vaivasvat declared it to his fon Menu; Menu explained it, &c." This Menu is the author of the celebrated Infitutes that bear his name: he is also named Satyavrata, and is reasonably believed to be the fame with the Noah of Scripture. (See Menu and SATYAVRATA.) These offspring of the fun are likewise called Suryavanshi; and this: and some farther notice of their curious coincidence with the solar race of Peruvians will be found in our articles Rama and Sita. The Hindoo Pluto is sometimes called Vaivaiswata Yama; denoting, we conclude, his solar origin.

VAKEF, in Geography, a town of Arabia, in the province of Nededs; 100 miles N. of Jamama.

VAKIA, in Commerce, a weight in Peria and Arabia. At Bassorah, the weights for merchandise are, the maund attary, the maund fey, and the oka of Bagdat. The maund attary contains 25 vakias tary (sometime reckoned at 24 or 26 vakas), and weighs 28 lbs. avoirdupois, or the vakia 10 ounces. The maund fey, or maund Bassorah, contains 24 vakias fey (called okas of Bassorah), equal to 76 vakia tary, or 90 lbs. 4 oz. avoirdupois. The oka of Bagdat is 23 vakias tary, or 47 lbs. avoirdupois. In fales of ginger, pepper, and coffee, 26 vakas are allowed to the maund; in fales of cardamoms, fugar-candy, and benzoin, 25 vakas per maund; and in fales of sugar and metals, 24 vakas per maund. The vakia tary, which should be about 115 mifals (the mifal weighing about 72 English grains), varies from 110 to 118, and the others in proportion.

At Betelagu, or Betlafackee, in Arabia, a rattle of coffee contains 14½ vakas, and a farcel, or farzil, of the fame, 290 vakias; of dates, candles, and iron, 16 vakias are reckoned to a rattle; of all other sorts of goods, 15 vakas make a rattle. At Mocha, gold and silver are weighed by the vakia of 10 cofalas, or 160 carats: 24 carats = a mifal, and 1½ vakia = a beak: 100 Spanish dollars weigh 87 vakias, so that a vakia weighs little more than 1 oz. English troy weight; the bahar contains 15 farzels, or 150 maunds; the maund = 40 vakias; a rattle is = 15 vakas, but in coffee, 14½ vakias are reckoned for a rattle; 2 rattles for a maund, and 10 maunds, or 290 vakas, for a farzil. Kelly's Univ. Cambiff.

VAKUNAIKA, in Geography, a river of Ruffia, which runs into the Kifenga, N. lat. 56° 16'. E. long. 88° 14'.

VAL, L.A. See LAVELD.

VAL, La, a town of France, in the department of Mont Blanc; 20 miles E. of Montlfer.
VAL

VAL., Le, a town of France, in the department of the Var; 3 miles N. of Brignoles.

VAL di Compare. See Teakt.

VAL de Morea, a town of Spain, in the province of Leon; 12 miles E. of Ponferrada.

VAL de Prades, a town of Portugal, in the province of Tras os Montes; 16 miles E.N.E. of Miranda.

VAL de Ricuer, or Val de Ricuer, a town of France, in the department of the Calvados; 12 miles N.W. of Caen.

VAL Ratsado, a town of Naples, in Lavora; 15 miles S.E. of Sora.

VAL de Salas, a town of Spain, in Galicia; 22 miles S. of Orense.

VAL de Santiago, a town of Portugal, in the province of Alentejo; 27 miles S.W. of Beja.

VAL de Travers, a district of the principality of Neuchatel, about 18 miles in circumference, and containing about 3500 inhabitants; It is situated between Neuchatel and Pontarlier.

VAL di Trompia, a valley of Italy, in the Brevign, containing 19 parishes, and about 13,000 inhabitants, chiefly employed in the manufacture of iron.

VAL de Vareas, a town of Spain, in the kingdom of Seville; 10 miles from Lucena.

VAL de Uxos, a town of Spain, in the province of Valenla; 17 miles S.E. of Segorbe.

VAL. in Ancient Geography, a town of the interior of Thrace. Polemy.—Allo, a town of Africa, in Mauritania Tingitana. Ptol.

VALADARES, in Geography, a town of Portugal, in the province of Entre Duero e Minho; 5 miles S.W. of Melgaco.

VALAGODE, a town of the island of Ceylon; 60 miles S. of Candy.

VALAIS, or VALLAIS, an independent republic in alliance with the thirteen cantons of Switzerland, and which has formed a particular league with the seven Catholic cantons, for the defence of their religion. This tract of country stretches from E. to W. about 100 miles, and contains 100,000 inhabitants, professing the Roman Catholic religion. It is divided into Upper and Lower Vallais; the ormer reaching from the Furca to the Morge, below Sion, which is its capital; and the latter, from that river to St. Gingou, situated upon the lake of Geneva. From the mountain of Furca, its eastern boundary, two vast ranges of alps inclose the Vallais; the southern chain separates it from the Milane, Piedmont, and part of Savoy; the northern from the canton of Bern. These two chains, in their various windings, form several small valleys, watered by numerous torrents that rush into the Rhone, as it traverses the whole district, from the Furca to St. Maurice. A country thus entirely inclosed with high alps, and confining of plains, elevated valleys, and lofty mountains, may be naturally suffused to exhibit a great variety of situations, climates, and productions. Accordingly, the Vallais presents to the curious traveller a quick succession of prospects, as beautiful as diversified. Vineyards, rich paitures covered with cattle, corn, flax, fruit-trees, and forests, occasionally bordered by naked rocks, crowned with everlasting snow.

The productions of the Vallais vary according to the great diversity of climates by which this country is diversified. It supplies more than sufficient wine and corn for interior consumption, and exports a considerable quantity of both; the soil in the midland and lower districts being exceedingly rich and fertile. In the plain, where the heat is collected and confined between the mountains, the harvest is usually finished in July; whereas, in the more elevated parts, barley is the only grain that can be cultivated with any success, and the crop is seldom cut before November. About Sion, the fig, the melon, and all the other fruits of Italy, come to perfection. In consequence of this singular variety of climate, the traveller in the same day may indulge himself with strawberries, cherries, plums, pears, and grapes, each of which is the natural growth of the country.

Both the hills and valleys of the Vallais breed cattle in abundance, and yield plenty of game. The mountains are supposed to contain lead, copper, and silver mines; but the products, it is supposed, would not defray the expense of working them. Here is likewise pit-coal. The Vallais is noted for two hot-baths of celebrated virtue, as those of Brug, or Gleeo, and Leuck, the latter of which is commonly known by the appellation of the Vallais bath. In the upper tythings the prevailing language is the German, but the inhabitants of Sion, in the Upper Vallais, with all in the Lower, speak a corrupt French; though in both parts, especially in the chief burg, they apply themselves to the German, French, Italian, and Latin; being all indifferently necessary to them in their intercourse with the cantons of Bern and Uri, Savoy, Piedmont, and the Milane; therefore a stranger cannot but be surprised at the fluency with which the meanest people here speak those four tongues.

The ancient inhabitants of this country were the Lepanti, Vibra, with the Sedani and Varergi, who hold their liberty dear to Sergius Galba, general of Julius Caesar. In the middle ages it came to be called Valefia, and in 1032, under the emperor Conrad II., devoted to the German empire, as a part of the second Burgundian kingdom. In the year 1035, that prince made over the Lower Vallais to the counts of Savoy. The inhabitants of the Upper Vallais resolutely maintained their liberties, as well against the dukes of Zaringen, who, in the year 1157, were by Frederic I. appointed guardians of the bishopric of Sion; as against the bishops of that see, who assumed the title of counts of the Vallais, and after that drove out the families of the barons Tour and Karen, who had usurped a dangerous authority among them. In 1475, the bishop of Geneva fell on the Upper Vallais with a body of 18,000 men, consisting of Lower Vallaisians and Savoyards; but the Upper Vallaisians, being afflicted with 3000 troops by Bern, Friburg, and Solothurn, their allies, defeated the bishop, and even made a conquest of the Lower Vallais, which ever since that time has been subject to them. In the same year, also, they formed a perpetual alliance with Bern, which was renewed in 1643; and in 1529, with the whole Helvetic body. In 1553 they entered into a more particular union with the seven popish cantons.

At an early period of the French revolution, the disaffected party of the Lower Vallais appealed to France to emancipate their country from their subjection to the Upper Vallais, but the French not having matured their scheme of fraternization, their petition was rejected.

In February 1798, however, the people of the Lower Vallais were enfranchised, and admitted to an equality of rights by the Upper Vallais; but after the conquest of Bern, and the revolution of the greater part of Switzerland, the inhabitants of the Upper Vallais rejected the new constitution, took up arms, and defended themselves with great spirit. After several bloody defeats, and the capture of the cattle of Sion, which was formed by the French, the natives submitted, and both districts were moulded into one department, called the Vallais.

There are no manufactures of any consequence; and indeed the general ignorance of the people is no less remark-
able than their indolence; so that they may be considered, in regard to knowledge and improvements, as some centuries behind the Swis, who are an enlightened nation. The peasants seldom endeavour to meliorate those lands where the soil is originally bad, or to draw the most advantage from those which are uncommonly fertile: having few wants, and being satisfied with the spontaneous gifts of nature, they enjoy her blessings without much considering in what manner to improve them.

The Upper Vallais is sovereign of the Lower Vallais, and comprises four independent districts, or commonwealths; namely Sion, Goms, Breiz, Vifp, Leuc, and Siders; of these, Sion is aristocratical, and the others democratical. They are called dixains, because the Upper Vallais being divided into seven, and the Lower into three districts, each division is a dixain, or tenth of the whole.

The bishop of Sion was formerly absolute sovereign over the greater part of the Vallais; but his authority is at present limited to a few particulars. He has the sole power of pardoning criminals, and figus the warrants for execution; the money is coined in his name, and with the arms of the republic. In his acts he beys himself bishop of Sion, prince of the German empire, and count and prefect of the Vallais; in days of high ceremony he dines in public, and is waited upon by the first noble of the Vallais, who is hereditary treasurer. He nominates also the bailiffs or governors of the two bailiages of Martigny and Arden, and possesses considerable influence from his patronage of church preferment. Upon a vacancy in the see, the canons of the chapter of Sion present from their own body four candidates, one of whom is appointed bishop by the landstrach, or general diet.

The seven dixains form, conjointly with the bishop, the republic of the Vallais, and all affairs are transacted in the diet, called landstrach, which meets twice every year at Sion. This assembly consists of nine voices; the bishop; the lands-hauptmann, who is chosen or confirmed by the diet every two years; and the seven communities. The bishop presides; the lands-hauptmann collects the votes; and all resolutions are decided by the majority. Each dixain, although it has but one vote, sends as many deputies as it pleases; the seven generally consist of four; a judge, a bannere, a captain, and a lieutenant. The judge and the lieutenant are appointed every two years: the two others hold their offices for life.

In all civil causes of a certain importance, an appeal lies from the inferior courts of justice to the diet in the last resort. Thus, by the institution of this supreme council, the communities in this country are firmly united, and form in conjunction one body politic, or republic, for the general affairs of the nation. In other cases, each of the commonwealths is governed by its own particular laws and customs.

Both the Upper and Lower Vallais were formerly dependent upon the bishop of Sion; but the inhabitants of the two districts united in order to limit his power; and, having succeeded, quarrelled for superiority. A bloody war ensued; which terminated in 1475, by the total defeat of the Lower Vallaisians. Since that period, they have continued subject to the Upper Vallais, with the enjoyment, however, of some considerable privileges.

The inhabitants are generally of low stature, and those of that part of the Vallais in which the capital (see STOX) is situated, are very subject to goiters, or large excrescences in the neck, which frequently increase to an enormous size, and what is more extraordinary, idiocy is no less prevalent. The weather in this inclosed vale is exceedingly fultry and oppressive. This languid heat is probably one of the causes which occasion the inconceivable indolence of the inhabitants: much, however, must at the same time be attributed to the richness of the soil, which precludes the necessity of labour by almost spontaneously producing the fruits of the earth. In fact, the people allift nature very little: they suffer the vines in the vineyards to trail upon the ground; whereas, if the branches were properly supported, the owner would be well rewarded by the superior quantity and quality of the produce.

The uncleanness of the common people is disgusting beyond expression. Although the Lower Vallais exhibits as much uncleanness, its natives are not altogether so indolent as those of Sion and its environs. This imputation of indolence will not hold good with respect to all the inhabitants of the Upper Vallais: for in the eastern part of that district, the soil, though far inferior, was much better cultivated, and the people seemed industrious. Some physical reasons may be assigned for this difference; for there the weather is not so fultry, the water is not unwholesome, the air remarkably salutary, and none of those goitrous persons or idiots were observed common in the midland parts. See MARTIGNY and St. MAURICE.

VALANTIA, in Botany, was originally so named by Tournefort, in honour of his pupil SEBASTIAN VAUJANT, see that article. The latter, as Linnæus remarks, was disfatisified with this application, and wished, on that account, to set aside all names of botanists, as applied to genera, because he perceived the VALANTIA of Tournefort not to be distinct from CRUCIATA of the same author. He was so far correct; but there have been several species referred since to Valantia, which appear to constitute a good genus, whose limits the writer of this has attempted to define, in the Flora Graeca and its Prodrömus, and which will here be exemplified.—"Tour. in Mem. de l'Acad. des Sc. for 1706. t. 5." Sm. Fl. Greæc. Sibith. v. 2. 28. Prodr. v. 1. 95. Linn. Gen. 543. Schreb. 723. Willd. Sp. Pl. v. 4. 947. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 5. 434. Dill. Gen. 147. t. 8. Mich. Gen. t. 7. Jull. 197. Lamarck Hûtâr. t. 843. (Gallium hifipidum; Gertn. t. 24.)—Clas and order, Tetrándria Monogygna. (Polygama Monocœa; Linn.) Native Order, Stellæs, Linia, Rubiæceæ, Jull. Gen. Ch. t. 4. Perianthii. Cor. 4; Petals three-flowered, variously shaped, enlarged after flowering, containing the solitary fruit. Car. superior, of one petal, flat; that of the central flower with four, of the lateral, or male, ones with three, deep ovate segments. Stam. Filaments in the central flower four, in the lateral ones three, thread-shaped, curved, alternate with the segments, and half as long; anthers roundish, of two cells. Pijf. German solitary, inferior, concealed in the receptacle, belonging to the central flower, with the rudiments of two seeds; style in the central flower only, deeply divided, fearfully long as the stamens; stigma obtuse. Peric. formed of the enlarged permanent receptacle, gibbous, inflated, of one cell. Seed generally solitary, sometimes two, ovate, concealed in the receptacle, smooth.


Obf. The above limitation of the genus before us excludes V. pedemontana, Willd. n. 4; bimafisa, Willd. n. 6; taurica and cheiopinacifera, Willd. n. 9; and 12, with V. Apa- rine, articulata, Cruciata and glabra, of Linnæus, all which eight species belong, if we mistake not, to Galium. Willdenow has already properly removed from this genus V. hypocarpa, which is, as Browne and Pursh make it, a species of Rubia, very remarkable, however, for its apparently superior

12
Valentine. But we apprehend that what looks like an inferior calyx, may be four bracteas, and that this species, like Rubia tinctorum, may have no real perianth.

1. V. muralis. Wall Crows-wort. Linn. Sp. Pl. 1490. Willd. n. 1. Ait. n. 1. Sm. Fl. Grec. Sibth. v. 2. 28. t. 137. (V. annua quadrifolia verticillata, floribus ex viridi palmo cervicio, frutto echinato; Mich. Gen. 13. t. 7. Cruciat, nova roman. minima muralis; Colum. Echpr. 929. f. 2. Rubia quadrifolia, verticillato femine; Bauh. Hift. v. 3. 718.)—Fruit lobed; its angles fringed with teeth. Whorls crowded. Native of walls and dry banks in Italy and the south of France, as well as in Greece. Dr. Sibthorpe gathered it on mount Hymentus, near Athens, and on the hills of the country of Argos. The root is small and annual. Stems several, about a finger's length, ascending, clothed with numerous whorls of small, obovate, entire leaves, four in a whorl, a little hairy on each side. Flowers axillary, one to each leaf, small, sessile, pale yellow. Fruit of a singular appearance, much larger than the flowers, deflexed; gibbous and smooth at the base, lodging a solitary ovate, smooth seed; its lobes divaricated and toothed.

2. V. bipalda. Brilli Crows-wort. Linn. Sp. Pl. 1492. Willd. n. 2. Ait. n. 27. Sm. Fl. Grec. Sibth. v. 2. 29. t. 138.—Flower bilateral. Whorls rather remote. Native of the south of Europe. Dr. Sibthorpe gathered it on the mountains of Crete, and has supplied the only figure that exists of this species. An annual herb, twice the size of the foregoing, and distinguished by its longer, narrower, more diftant leaves; but more essentially by the oblong form of its common receptacle, or fruit, beset with pale rigid bristles, and not fringed, in whose gibbous smooth base is lodged a solitary seed, whose infertion is erroneously represented by Gaertner. Miller cultivated both these species, but nothing can be less likely to interest a mere flower-garden botanist. To those who study natural genera, and their affinities, these plants are highly curious, and sufficiently demonstrate Valaria to be distinct from Galium.

3. V. filiformis. Leaf Crows-wort. Ait. n. 3. Willd. n. 3.—Flower cylindrical, scaly, without prickles, longer than its stalk. Leaves lanceolate, somewhat fringed. Gathered by Mr. Maffon, in Teneriff. Root annual. Stems simple, a span long, bipalda. Leaves four in each whorl, somewhat flaked, reticulated with veins; the lower ones roundish. Common receptacle beset with minute, lanceolate, chaffy scales.

4. V. Cucullaria. Hooded Crows-wort. Linn. Sp. Pl. 1491. Amoen. Acad. v. 4. 296. Willd. n. 5. Ait. n. 5. (Cucullaria; Buxb. Cent. 13. t. 19. f. 2.)—Bracteas ovate, flaked, deflexed, concealing the Oblong furrowed hairy fruit.—Gathered by Buxbaum, in Capadocia, and by Haeflirguett in Arabia, on hills, flowering in May. A small, branching, annual herb, with square rough-edged stems. Leaves ovate, flaked, revolute, rough with minute prickles. Flowers very small, yellowish, on branched axillary spikes, each spike bearing three flowers, and as many large, pale, reticulated, smooth, overshadowing bracteas, which well mark this species, and caused Buxbaum to distinguish it as a genus, by the name of Cucullaria. The plant is, however, a true Valaria.

5. VALARSA-KERD, in Geography, a town of Turkish Armenia; 15 miles W. of Diadin.

6. VALAY, a small island near the west coast of North Uist. N. lat. 57° 37'. W. long. 7° 29'.

7. VALBASE, a town of Spain, in Old Cafell; 15 miles W.S.W. of Burgos.

8. VALCA, a river of the Popedon, which runs into the Tiber, about 5 miles above Rome.

9. VALCALDE, or VILLALCALDE, a town of the Genoese republic; 10 miles N. of Genoa.

10. VALCENBURG, a town of Holland; 3 miles N.W. of Leyden.

11. VALCKENSTEIN, a town of the duchy of Wurzburg; 5 miles N. of Gerolzhoften.

12. VALCOUR. See WALCOUR.

13. VALDAGNO, a town of Italy, in the Vicentin; 17 miles W. of Vicenza.

14. VALDAJA, or VALDARY, a town of Russia, in the government of Novgorod; 72 miles S.E. of Novgorod. N. lat. 57° 50'. E. long. 33° 44'.

15. VALDARACETE, a town of Spain, in New Cafile; 22 miles S.E. of Madrid.

16. VALDASNES, a town of Portugal, in the province of Tras os Montes; 9 miles E.S.E. of Mirandela.

17. VALDAY MOUNTAINS, mountains of Russia, in the government of Novgorod, which are crofted in travelling from Peterburgh to Moscow, and are probably a continuation of the Lapland mountains. They were known to the ancient geographers by the name of Mons Albanus. At present they are indifferently called Vihokaya Plattshade, high rising ground, or the mountains of Valday, from the town and the lake Valday, which are situated on their summits. The country about Valday, being the highest point of the mountain, is extremely pleasant. Fine, flow-rising hills, a charming pellucid lake, with an island on which stands a noble monastery, delightful groves, and an extensive scenery, form the most pleasing variety. These mountains afford numerous and large blocks of granite, quartz, and sandstone, together with felspar, hornblende, mica, fesol, porphyry, jasper and fletiates. The granite blocks are covered with sand and clay. The Valday eminence, which is the highest ridge of these mountains, shapes its course from the north, and appears to take its departure from between the lakes Ladoga and Onega. It then stretches across the Mts, runs between the Ilmen lake, and the Seliger, and extends its foot as far as into the governments of Smolenik, Orel, and Novgorod-Severiki. About its western, southern, and eastern declivities, are several strong flatts of chalk and marle, which in farther progresses are lost in marly and sandy plains. Some naturalists are of opinion, that the whole of this Valday chain of mountains is the effect of violent inundations, and that it entirely consists of a chalk-stone riven from crumbled and destroyed marine productions. But it is not less probable, that the middle part is a primitive mountain, having granite for its principal stratum, which, through a long interval of time, and perhaps under water, is so much decayed as to be in a manner smoothed. No chalk-pit has yet been opened on its summit. Upon the whole it is suppos'd, that all these elevations may be an original mountain decayed and destroyed on its surface, on which, round about its declivities, the loose chalk and marle are floated and deposited. Among these mountains no mine has yet been explored. Some specimens have been obtained of copper and lead; but here is plenty of iron and lime. The extreme elevation of the Valday mountains is very moderate, as the highest point is scarcely 200 fathoms above the level of St. Peterb. Besides the Valday lakes, there are others of inferior note; and at the western foot is the great lake Ilmen, at the southern, the Seliger, &c. Of the rivers, some spring from the mountains, and others are supplied by the lakes that lie at their feet; such are the Vologa, the Duna, the Volkhit, the Lovat, the Pola, the Thagedo, the Klop, the Dnieper, the Don, the Oka, &c. These mountains are sparingly
V A L

sparing clothes with forests, but so much the more with beautiful meadows and fields, so that the graziers derive from them considerable profit. The species of wood are the several sorts of pines and firs, the birch, the linden, the alpen, the alder, &c. The soil in the valleys mostly consists of clay and marl, and is generally fertile. Tooke's View of the Russian Empire, vol. i.

VALDEBUCON, a town of Spain, in the province of Leon; 34 miles N.N.E. of Leon.

VALDECONA, a town of Spain, in Catalonia, on the borders of Valencia; 15 miles S. of Tortosa.

VALDEMANZANAS, a town of Spain, in the province of Leon; 8 miles S.W. of Aitorga.

VALDEMORO, a town of Spain, in New Castile; 13 miles S. of Madrid.—Alfo, a town of Spain, in New Castile; 18 miles E.N.E. of Cuencía.

VALDENSES, in Ecclesiastical History. See VAUDOS.

VALDEPENAS, VALENSAS, in Geography, a town of Spain, in the province of Jaen; 8 miles S.W. of Jaen.—Alfo, a town of Spain, in New Castile; 22 miles S.E. of Cidad Real.

VALDESIA, a town of Spain, in the province of Leon; 23 miles S. of Leon.

VALDIES, a town of France, in the department of the Tarn; 6 miles N.N.E. of Alby.

VALDEZ, John, in Biography, a Spanish reformer and lawyer, was knighted by Charles V. During a tour in Germany he imbibed the principles of Luther; and afterwards settling in Italy, and chiefly at Naples, he became secretary to the king. During his abode in this city, he communicated his sentiments to several persons, and particularly to Peter Martyr and Ochinsus. But though in those religious sentiments he concurred with the reformers, and in his notions regarding the Trinity with those that were denominated Unitarians, he does not appear to have formed any separation from the church of Rome. His discipless, however, were numerous, and attracted the notice of the Inquisition; the dread of which induced several of them to quit the country, and others to retract their opinions. Valdes died at Naples about the year 1540, with an embellished character for piety and virtue, and leaving several works, particularly "Commentaries on various Parts of the New Testament, &c." some of which have been inserted in the Index of the Inquisition, and others censured by the reformers. Beza condemns his treatise entitled "Considerations," charging it with being the source of the errors of Ochinsus. Bayle.


VALDÍÁ. See OVIED.

VALDIGEM, in Geography, a town of Portugal, in the province of Beira, near the Duero; 3 miles N.E. of Lamego.

VALDIVIA, a river of Chili, which runs into the South Pacific ocean, near Valdivia.

VALDIVIA. See BALDÍA.

VALDOR, a town of Hindoostan, in the Carnatic; 8 miles W.N.W. of Pondicherry.

VALDORF, or WALDRON, a town of Wellington, in the county of Renfrew; 3 miles S.W. of Biekefeld.

VALDROME, a town of France, in the department of the Drôme; 18 miles S.E. of Diec.

VALDUS, or WALDUS, Peter, in Biography, was the son of a rich merchant of Lyons, who lived in the twelfth century, and derived his name from Vaux in Dauphine, the place of his nativity. With a mind deeply impressed by the sudden death of a friend, he directed his views entirely to another world, distributed his wealth in alms, and employed himself in propagating just sentiments, as he conceived them to be, of true religion. From another account of this reformer we learn, that about the year 1160, he employed a priest in translating the four gospels from Latin into French, and by the perusal of them adopted opinions very different from those of the Romish church. In 1180, connecting himself with a small society of sentiments similar to his own, he assumed the character of a public preacher. Attempts were made to induce him, but they proved ineffectual; and the number of his followers gradually increased. Expelled from Lyons, he retired to the mountains of Dauphine and Savoy, and propagated his opinions, which were eagerly adopted by the multitude through the adjacent valleys, where they took deep root, so that no persecution or violence could eradicate them. From him, as some say, sprung the sect of the Waldenses. For other particulars, we refer to the article VALDENSES.

VAL of a Pump, at Sea, a term for the trough by which the water runs from the pump along the ship's fides, to the scupper-holes.

VAL of Valley Lands, in Agriculture, are terms applied to any of those which lie in low, narrow, hollow tracts or depressions between hills or rising grounds on their different fides: They are, for the most part, applicable in a more particular manner to gars and dairy practises than others, but sometimes, when suitably dry, to the sphe of the arable kind. They are in many cases very quick in vegetation, and extremely productive; being readily capable of improvements by warping, watering, and other such means; but little expense, which should always be well attended to, in all such lands where there is the possibility of effecting them.

The latter is likewise a term sometimes applied to a gutter or channel in a road or other such situation.

VALENIA, in Geography, a sea-port town of Africa, in the kingdom of Fez, situated on the coast of the Atlantic, in a fertile plain: it is a very spacious natural haven, surrounded by rocks, capable of containing above 1000 ships; but the entrance, which is entirely open to the west, is extremely difficult and dangerous. The coast is lined with rocks near 30 feet in height, which anciently must have been washed by the sea, the Moors living in the caverns hollowed out by the water. At the bottom of the rocks, the sands heaped up by time have formed a plain, laid out into gardens and cultivated: the town is little more than a circle of walls, containing but few inhabitants; 27 miles S.S.W. of Mazagan.

VALEGAR, a town of Hindoostan, in Coimbetore; 15 miles W. of Damiocotta.

VALEGGIO, or VALEZZO, a town of Italy, in the department of the Benaco, on the river Mincio; 14 miles S.W. of Verona.

VALEGIO, a town of Italy, in the department of the Gorgia; 4 miles N.E. of Lumelio.

VALENCIA, a town of Portugal, in the province of Entre Duero e Minho, on the S. side of the Minho, opposite Tuy in Spain, and said to have been founded by the soldiers of Viriatus. It contains two parish-churches, an hospital, two convents, and about 500 inhabitants; 16 miles W. of Oporto. N. lat. 43°. W. long. 5° 20'.

VALENCIA, a town of Spain, in Estremadura, on the borders of Portugal; 24 miles S.W. of Alcântara.

VALENCIA de Alcantara, a town of Spain, in Estremadura, on the borders of Portugal; 24 miles S.W. of Alcântara.
of Beira, situated about half a league from the Duero; 12 miles W. of St. Joao de Pesqueira.

VALENCE, a town of France, and principal place of a district, in the department of the Lot and Garonne; 12 miles S.W. of Agen. N. lat. 44° 6'. E. long. 0° 59'.—Also, a city of France, and capital of the department of the Drôme, on the left side of the Rhône; anciently a Roman colony, called Julia Augusta. Before the revolution it was the see of a bishop, and capital of a principality called Valentinois. An university was brought hither from Grenoble in the year 1454; 16½ posts N. of Avignon. N. lat. 44° 55'. E. long. 4° 59'.

VALENCIA in Albigeois, a town in France, in the department of the Tarn; 12 miles N.E. of Alby.

VALENCE, a province of Spain, bounded on the N. by Aragon and Catalonia, on the E. and S.E. by the Mediterranean, on the S.W. by Murcia, and on the W. by New Cañile, about 220 miles in length from N. to S. ; the breadth is unequal, from 20 to 45. Valencia is, in proportion to its extent, one of the best peopled provinces of Spain, and contains seven cities: has four sea-ports, the most considerable of which is that of Alicante; the soil is extremely fertile, although divided by mountains. These contain mines of sinopica, or blood-stone, iron, and alum. There are also found quarries of marble, jasper, plaster, lapis calaminaris, and potter's-clay, of which different kinds of earthen vessels are made. The climate is mild and pleasant, but there is something enervating and faintish in the air; vegetables with the finest outward show imaginable are not good to the taste. No women work in the fields; but this may proceed from their constant employment within doors, as much as from any remains of Moorish jealousy, though the Valencians still retain much of the features and manners of their old Saracen masters. To this day the farmers will not allow their wives to sit at table, but make them stand at their elbow and wait upon them. The inhabitants of this province are said to have more of the fifth and fuller unpolished manners of the old Spaniards, and to have adopted the best of foreign improvements in civilization, than most other parts of Spain. This kingdom and city were conquered by the Moors under Abdallah Cis, and recovered in 1094, when the famous Cid Ruy Diaz de Vivar, taking advantage of the confusion and civil war that raged in Valencia, after the murder of Sultan Hiaya, made himself master of the city by storm, at the head of a chosent band of valiant knights. This was the last exploit of that hero, so long the terror of the Mussulmen. A few days after his death, the king of Cañile, finding it too far distant from his other dominions to be conveniently succoured in case of a sudden attack, thought proper to withdraw his troops, and suffer the Moors to repel one of their attacks. It was again taken from them by James I., king of Aragon, in the year 1238, and for ever united to that crown, the fate of which it has ever since followed through all its various revolutions. In the beginning of the reign of Charles V. this province was distracted by civil commotions and struggles between the nobility and commons. The population of the whole kingdom of Valencia amounts to 17,921,211 vecinos, or 716,884 souls, resident in 570 towns and villages. The manufactures of silk are the cause of a population that may be reckoned considerable, if compared with that of other provinces of Spain. The produce of this article, on an average of one year with another, amounts to about 500,000 pounds, worth a doublon per pound, in the country. Government has prohibited the exportation of Valencia raw silk, in order to lay in a stock to keep the artificers constantly employed in bad years; for it has sometimes happened, that half the workmen have been idle for want of materials. The great nurseries of mulberry plants in the plains of Valencia are produced from seed, obtained by running a rope of Esparto over heaps of ripe mulberries, and then burying the rope two inches under ground. As the long plants come up, they are drawn and transplanted. The trees, which are all of the white kind, are afterwards set out in rows in the fields, and pruned every second year; in Murcia only every third year; and in Granada never. The Granada silk is esteemed the best of all, and the trees are all of the black fort of mulberry. The fruit exported from Valencia to the N. of Europe may be estimated, communibus annis, at two millions of pezos, about 334,000l. sterling. The annual crop of hemp may be worth 300,000 pezos, at three pezos per arroba: 140,000 loads of rice, at 10 pezos a load, make 1,400,000 pezos. The vintage of 1767 produced 4,309,000 measures of wine, which, at three reals a measure, come to 861,133 pezos. There is also much cotton made in this province from the cotton-plant, which rises to the height of three feet at most, and very much resembles the raspberry-bush. They make in good years 450,000 arrobas, worth 1,550,000 pezos, and in middling years 280,000 arrobas. Notwithstanding all this abundance, nothing can be more wretched than the Valencian peasantry, who can with difficulty procure food to keep their families from starving. Valencia is watered by 35 rivers, all of which run towards the E. It was formerly inhabited by the Celtiberians, the Turdetani, the Lusoni, &c. &c. Valencia was erected into a kingdom, in the year 788, by Abdalla, governor of Valencia, who revolted from the king of Cordova, but was however obliged to pay an annual tribute of 17,000 maravedis. This kingdom continued till the 13th century, when the last king, Zalen, was dispossessed of his capital, and compelled to leave his dominions with 50,000 Moors.

VALENCE, a city of Spain, and capital of the province so called. Its ancient name is unknown; but it is said to have been taken and fortified by Scipio, destroyed by Pompey, and rebuilt by Caesar. It was taken from the Romans by the Goths, and from the latter by the Moors, who twice possessed it 230 years; for it was taken in 994, by the famous Cid Ruy Diaz de Vivar, and bore, during four years, the name of Valencia del Cid. The Moors retook it, but it was finally conquered in 1238, by the king Don Jaime, and embellished as well as enlarged by Don Pedro IV. king of Aragon. It is about half a league in circumference, and the walls are built for ornament rather than defence. Marianna the historian says, that in Valencia cheerfulness enters at the doors and windows: the description he gives of this city is in many respects devoid of truth, and such that the author proves himself more a poet than an historian. Several geographers who have had implicit faith in Marianna, have even exaggerated his account of Valencia, and said the houses here are all palaces, on which account the name of Bella was given to the city, an epithet difficult to reconcile with narrow, crooked, and unpaved streets, impassable after rain; and in which there are but two or three houses built with tafe, and a few churches distinguished by their architecture. It is the see of an archbishop, and an university, instituted in the year 1470. Here is a tribunal of inquisition, with a royal audience, in which the governor, the captain-general of the province, and a royal regent, preside. The number of inhabitants is estimated at 100,000, but perhaps 80,000, or between both, is nearer the truth; 170 miles E.S.E. of Madrid. N. lat. 39° 27'. W. long. 0° 29'.

Accounts are kept at Valencia in libras of 20 soldi, or 240 dimes; also in reals of new plate of 24 dimes. The libra of Valencia is equal to the pez of plate,
er dollar of exchange; it is, therefore, worth 8 reals of old plate, 10 reals of new plate, or 15 reals 2 maravedis yellow. The real of Plata Valenciana, 13½ of which make a libra, is worth 14 sueldos, or 18 dineros, that is, $4 per lb of a real of new plate. The libra is worth $304 per lb. nearer; or, more accurately, 1 lb. is 6 libras, 1 sueldo, 5 dineros of Valencia. A carga or carica weighs 3 quintals, or 12 arrobas; the arroba, 24 lbs. peso grueso, or 36 lbs. peso fútiele: the former pound is 18 oz. the latter 12 oz.; and the ounce is 1⁄2 heavier than the Califian ounce: hence 50 lbs. peso grueso, or 75 lbs. peso fútiele, answer nearly to 59 lbs. avoirdupois. The fútiele, or lighter weight, is used for bread, sugar, tobacco, and spices; the grueso, or heavier weight, for most kinds of merchandise.

Corn is measured by the calizh of 12 barfellas, or 48 decemines: 100 cahisis produce 58½ English quarters. The cantaro, or arroba, liquid measure, contains 4 arrobas; and 25 such arrobas = 88 English wine gallons nearly. The carga of wine consists of 15 arrobas; the carga of oil of 12 arrobas. The vara or ell is divided into 4 palmas, and is about one-half longer than the Califian vara, measuring, therefore, 36½ English inches. Kelly's Un. Camp.

VALENCIA, a town of South America, in the government of the Caraccas; 16 miles S.W. of Caraccas. This city was founded in 1555, under the government of Villacinda, with a view of establishing a port near to Caraccas, in order to facilitate the conquest of the country, which had been much extolled by Faxardo. But Alonso Dias Moreno preferred a situation farther distant from the lake Tacarigua, now Valencia, or half a league W. of it on a beautiful plain, where the air was pure and the soil fertile. N. lat. 10° 9'. W. long. from Paris 70° 45'. Its population in 1801 consisted of 63,487 persons, according to some reports, but according to others, said to be more accurate, of 8,000 souls. The inhabitants are generally Creoles, and the issue of very ancient families, excepting some from the Canaries, and very few Biscayans. The streets are wide, and for the most part paved. The houses are built like those of Caraccas, but not with stone. There is one church tolerably well built, and in the eastern part of a beautiful square, from which it receives, and to which it gives an embellishment, that constitutes the principal decoration of the city. In 1804, another church was erected, and dedicated to our Lady of Chandalie. The Franciscans have a monastery, occupied by eight monks, which has a very neat and elegant church. The inhabitants had formerly the character of being the most indolent in the whole province; but in consequence of some vigorous measures that have been lately adopted, a spirit of greater activity and industry has been excited among them. The situation of Valencia is peculiarly favourable for trade: being separated by only ten leagues of good road from Porto Cavello, it may transport its commodities thither at a small expense; and besides, every commodity from the interior of the country shipped at Porto Cavello goes through Valencia, and that which is defined for Guayaquil passes through Caraccas. The adjacent country produces every sort of provision and fruit in the greatest abundance, and of a most exquisite flavour; and its plains furnish its markets, at a very low price, with every kind of animal which they can consume. Depon's Travels in South America, vol. ii.

VALLENCIENNES, a city of France, and principal place of a district, in the department of the North, situated on the Scheldt, which runs through the town in several places, and here becomes navigable. It is suppos'd to have derived its name from the emperor Valentinian 1, who, taken with the temperature of the climate, and charming situation of the place, laid the foundation of a town, about the year 367, endowing it with many privileges and immunities, and particularly of being an asylum for debtors and criminals. This privilege, which extended over the greater part of the town, was called "banlieue;" but it has since been limited, to prevent abuse from fraudulent bankrupts and_affidians. Before the revolution, it belonged to Hainaut, and contained several churches and convents. The town-house is an ancient building of free-stone, founded in the 14th century; the square or grand place is handsome, but the streets are in general narrow, dark, and crooked. The form of its municipal government was considered so good as to serve for the model of several republics, particularly Venice and Nuremberg, which sent deputies to collect the laws. Near the town is a coal-mine. Valenciennes was one of the first towns which revolted against Philip II. king of Spain; it took part with the States and the Protestant religion, and refused to receive a garrison sent by Margaret of Parma; in consequence of which it was besieged, in the year 1567, by John de Noircarne, Baron of Selles, and at the end of three months surrendered at discretion: thirty-six of the principal ringleaders were punished, and the town deprived of its privileges. It was afterwards several times taken and retaken by the duke of Alva and the States General. In the year 1656, it was besieged by the French, under the command of marquis Turenne and La Ferte; but they were compelled to raise the siege, after the loss of 4000 men killed and wounded, in several assaults. In the year 1677, it was besieged by Louis XIV. in person; and after 17 days, taken by assault. It remained to France by the peace of Nimeguen, which happened in the following year, when a new and landmine Citadel was built at the expense of the citizens, and other fortifications added. In 1793, Valenciennes was invested by the Allies, under the conduct of the Duke of York, and the governor Ferrand summoned to surrender. On the 14th of June, the trenches were opened. The British commander then summoned the garrison;
garrison; but receiving an unsatisfactory answer, the artillery began to play upon the town with great vigour, and in the course of the night above 500 red-hot balls were poured upon it. Towards the beginning of July, the besiegers were able to bring 200 pieces of heavy artillery to play without intermission on the town, and the greater part of it was reduced to ashes. The most singular fact in the history of this siege is, that a considerable part of the war was carried on under ground, mines and counter-mines innumerable having been formed both by the besiegers and besieged. The principal of these, on the side of the former, were one under the glacis, and one under the horn-work of the fortresses; these mines were completed and charged on the 25th of July, and in the night between nine and ten o'clock were sprung with the most complete success. The English and Aufrarians immediately embraced the opportunity to throw themselves into the covered way, of which they made themselves masters. The die was now cast, and on the 26th the duke of York again summoned the place, which surrendered on capitulation the preceding day; the duke of York taking possession of it in behalf of the emperor of Germany. The following year, however, in consequence of the successes of the French arms, Valenciennes surrendered to the republicans, by capitulation, on the 26th of August. The garrison were made prisoners of war, but to be conducted to the frill pot of the imperial and Dutch armies, on condition that they were not to offer against the republic till regularly exchanged. Considerable stores of every kind, with 200 pieces of cannon, 1,000,000 pounds of gunpowder, and 3,000,000 florins in specie, and 6,500,000 livres, were found in Valenciennes; 1000 head of horned cattle, and great quantities of oats and other corn, were also included within the fortresses. So earnest indeed had the emperor been to retain this important place, that he is said to have expended 3,000,000/. in repairing and improving the fortifications. What is the most to be lamented is, that upwards of 1000 unhappy emigrants were surrendered on this occasion to the vengeance of their enraged countrymen. The principal manufactures are lace, cambric, and woolen mitts, camlets, &c. 4 1/2 pofts E. of Douay. N. lat. 50° 21'. E. long. 3° 36'.

VALENGIN, or Vallenin, or Velangin, a town and capital of a lordship, in the county of Neufchâteil. See Neufchâteil.

VALENS, Flavius, in Biography, a Roman emperor, was born at Cibalis in Pannonia, and associated in the empire with his brother Valentinian A.D. 354, at the age of thirty-six. To him his brother, to whom he was much attached, assigned the easternt portion of the Roman dominions, comprehending the whole of Aisa, with Egypt and Thrace; upon this division, Valens made Constaninople the seat of his empire. Alarmcd by the movements of the Persians on the borders of his territory, he departed for Syria, and at Cesarea, in Cappadocia, he was informed that Procopius had taken possession of his capital. The emperor was so terrified by this intelligence, that he intended to negotiate with the usurper, and to propice to him an abdication of the empire. His ministers, however, advised him to detach a body of troops, in order to suppress the insurrection at its commencement; but these troops joined Procopius, and contributed to his success. At length many of the insurgents abandoned their commander, who rendered himself unpopular by his rapacity and tyranny, and he was ultimately betrayed to Valens, who ordered him to be beheaded. The emperor was thus established on the throne; but his conduct was such as to cool the ardour of his friends, and to excite enmity and opposition. In procès of time, from the year 366 to 369, he contended successfully with the Goth, and having reduced them to great distress, promised to conclude a treaty with them, which was ratified with great magnificence in bargains upon the Danube. Having accomplished this object, Valens returned in triumph to Constantinople.

Valens, having received his Christian creed from Eudoxus, the Arian bishop of Constaninople, disgraced himself by becoming a persecutor of the Athanasians: and in a contest between these two parties, he acted in a manner so rigorous and violent, as to entail indelible reproach on his memory. In 371 he left his only son, and in the following year he defeated the Persians, and afterwards readily consented to a truce. Whilfe he was passing the winter at Antioch, in the year 374, he manifested, in his treatment of persons who recurred to magical practices for ascertaining the name of the future successor to the imperial throne, the jealous cruelty of his character. Many pernian were involved in real or suspected guilt, and configned to the punishment of torture, banishment, or death. Having rehired five years at Antioch, watching the motions of the Persian king, repressing the incursions of the Saracens into the south of Hauran, and conducting land inquisitions and religious persecutions, his attention was excited by a terrible inundation of the Huns upon the territories of the Visigoths, and the Huns, having obtained permission to cross the Danube, penetrated into the cultivated part of Thrace. The Gothic tribes were joined by the Huns and Alans. The emperor arrived at Constaninople in 378, and urged by the clamours of the people, marched against the enemy to the vicinity of Constaninople. An engagement ensued, which proved singularly fatal to the Romans. Valens, defeated by his guards and wounded, betook himself to a cottage, in which his attendants were dressing his wound: the cottage was beset by the enemy, who being refilled, set fire to a pile of faggots, that consumed the emperor and all that were with him. Thus did Valens terminate his life at the age of fifty, and in the sixteenth year of his reign. His character, as it has been delineated by historians, merits in many respects contempt and detestation. He was nevertheless modest and temperate in his mode of living; addicted to no private vice or superfluous expense; ready to listen to the complaints of his subjects, and to protect them from the oppression of the military, among whom he preferred exact discipline; and it has been said that the Eastern provinces in general were never happier than under his government. Auc. Un. Hist. Gibbon's Rom. Emp. Gen. Biog.

VALENSELLE, in Geography, a town of France, in the department of the Lower Alps; 18 miles S. of Digne.

VALENTANO, a town of the Popedom, in the duchy of Caltro; 14 miles S.W. of Orvieto.

VALENTIA, in Ancient Geography, a town of Hispania Citerior, upon the Tauria. See Valencia.

VALENCIA, a town and colony of Galla Narbonensis, belonging to the Suebians, according to Pomponius, but to the Cavares, according to Pliny. In the Itinerary of Antonine, this town is marked on the route from Mediolanum to Lugdunum, between Augustula and Urfares. At the fall of the Roman empire this town became subject to the Burgundians, afterwards to the Merovingians; but under the Carolingians, it belonged to the kingdom of Burgundy and Arles. — Alfo, a country of the isle of Albion, according to Amianus Marcellinus. It was conquered by Theodosius the elder, and made a fifth Roman province. (See Otoilli.) — Alfo, a town of Italy, in Messapia, between Cipae and Civitas Brundii, according to the Itinerary of Jerusalem. — Alfo, a town situated in the interior of the isle of Sardinia.

VALENTIA, in Geography, a small island on the coast of A. Kerry,
Kerry, Ireland, in the barony of Inveragh, from which it is separated by a channel, which is a safe harbour. Though Valentia contains extensive bogs, it has more inhabitants and better culture than could be expected in so remote a spot; it is indeed esteemed the granary of the country. Oliver Cromwell had forts erected at both ends of the channel, which have gone to ruin. Valentia is the property of the marquis of Lansdowne. Its northern point is in N. lat. 51° 54'. W. long. 10° 10'.

**VALENTIA**, a bay of Ireland, on the eait side of Dingle bay, between the isle of Valentia and Dowlas Head.

**VALENTIAM.** See Cape ad Valentinam.

**VALENTINE, Peter,** in Biography, was born at Coloniers en Bric in 1600, and studied some time under Simon Vincent, but leaving that matter before he had made any considerable progress, travelled to Rome, where he passed the remainder of his life: he may therefore be rather considered of the Roman than the French school. The powerful and vigorous style of Michael Angelo Caravaggio made more impression on him, that he attached himself to an imitation of it, with a devotion that was never diminished. Like that artist, he indulged in an extravagant, but effective contrast of light and shadow; like him, he was a faithful follower of nature, and was equally indifferent and unfortunate in his choice of it; like him, he was frequently incorrect, and always ignoble. He was, however, an intelligent master of the chiaro- scuro, and his mafles are disposed so as to produce the most striking effect. Though he occasionally painted altar-pieces for the churches, his powers appear to have been better adapted to other subjects, which he also appears to have painted in preference. His bell pictures represent fortune-tellers, gamblers, concerts of music, and corps de gardes; to which his taste was more competent than to the dignity of historic painting. The patronage of cardinal Barberini, nephew to Urban VIII., procured him the commission to paint a large picture for the Basilica of St. Peter, representing the Martyrdom of S. S. Procceo e Martiniano, which is esteemed his bell historic painting. He also painted for his patron, the Decollation of St. John, in the Palazzo Barberini; and there is an admired picture by him in the Corsini palace, of Peter denying Christ. This pleasing painter died in 1632, at the early age of thirty-two, of a fever, being brought on by going into a cold bath when he was heated.

**VALENTINE,** in Geography, a town of France, in the department of the Upper Garonne; 2 miles S.W. of St. Gaudens.

**VALENTINE'S Bay,** a bay on the south-east coast of Terra del Fuego, west of Cape Succes.

**VALENTINI, Michael Bernhard,** in Biography, a native of Gieffen, in Germany, where he was born in 1657, and became a medical professor, and where he died in 1729. The subjects of his writings, which are numerous, chiefly comprehend botany and the materia medica: of these we shall here mention his "Letters from the East Indies;" "Praxis Medica," in two parts; "Amphitheatrum Zoetomium," fol.; and a "Corpus Juris Medic旅行-legalis," fol. referring for other works to the botanical article VALENTINI." Haller.

**VALENTINI, Pietro Francesco,** of Rome, who flourished about the year 1645, and whose patience and abilities in the construction of canons seem to have made every frequent canoniist despair of emulating his subtilty and dexterity in the art. Indeed he appears to have surpassed all that the most determined canoniists had ever achieved, by the several works which he published on the subject, in the following order: "Canon to the words Illas tuas miser;" "Canon to the words odos ad nos concerta," with the Resolution in more than two thousand ways, for two, three, four, and five voices, Rome, 1629;" "Canon, called the Knot of Solomon, for ninety-six voices, Rome, 1631;" "Canon on four Subjects for twenty voices, Rome, 1643." The first and most curious of these works seems to have been reprinted in 1655, as M. Marpurg of Berlin, and several other musical writers, in speaking of it, refer to an edition of that date. But P. Martini, who is in general very accurate in dates and citations, mentions Valentinii's first canonical work under the year 1629. Kircher gives the subject, and an account of this canon, in his Mufurgia. M. Marpurg, in a periodical work called Strittf 6st Wittte, or "Critical Letters on the Art of Music," vol. ii. 1763, 4to, has bestowed upwards of fifty pages on this canon, and not only given it a hundred different ways in notes, but explained more than two hundred of the several contrivances used by Valentinii in the construction of canons on the subject given.

Numerous musicians of the name of Valentinii have been recorded by musical writers; among whom Gerber gives an article to a nameake of the canonist, Pietro Francesco Valentinii, an opera composer at Rome in the middle of the seventeenth century, who, besides Intermezzi, set to music several dramatic fables written by good poets, such as "La Metra," a Greek fable; "The Death of Orpheus;" "Pythagoras finding Musical Proportions," 1654; "The Transformation of Daphne," a moral fable. His Intermezzi were the Rape of Proserpine, and the Captivity of Mars and Venus in the Net.

**VALENTINI, Roberto,** an Englishman, a voluminous composer for the common flute, whose works were chiefly published by Roger, at Amsterdam.

**VALENTINI, Giuseppe,** about the latter part of the seventeenth century, among other composers for the violin, a dozina, published in Holland nine different works for that instrument, the seventh and last of which were "Concerti Grossi," for four violins, tenor, and two basses; but they have been long since configned to oblivion, without any loss to the public, or injustice to the author.

**VALENTINI, Urbani,** the first soprano opera singer who appeared on our stage, arrived in England 1707, after the attempts that were made at opera upon the Italian model.

**VALENTINIA, in Botany,** received that appellation from Dr. Swartz, in memory of two writers of the name of Valentinii, who have both of them contributed to the general stock of botanical information, particularly with relation to the Materia Medica. Michael Bernard Valentinii, professor of medicine at Gieffen, who died in 1729, aged 72, published Prodrumus Historiae Naturalis Hafne, in 1707, Viridarium Reformatum, in 1719, Museum Mycorum, in 1704, and Histioria Familiarum Reformata, printed at different times; besides several dissertations, illustrative of the natural history of Sago, Cloves, Nutmegs, Pepper, Cinnamon, Dates, Alces wood, &c. His son, Christopher Bernard Valentinii, published Tournefortii Consuetudines, being an arrangement of Tournefort's Influstiones in the form of tables; with some other works.—Swartz Prodr. 64. Ind. Occ. 687. t. 184. Schreb. Gen. 801. Wildl. Sp. Pl. v. 2. 344. Mart. Mill. Dict. v. 4.—Clas and order, Ophionia Monogynia. Nat. Ord. uncertain.

Gen. Ch. Cal. Perianth inferior, of one leaf, concave, colour in five deep, nutate, concave, spreading, univalved segments. Car. none, unless the calyx be taken for such. Stam. Filaments eight, awl-shaped, erect, rather shorter than the calyx; anthers roundish. Fil. Germien superior, roundish; style one, the length of the filaments, thick, cylindrical; stigma
stigma capitate. *Peric.* Capsule pulpy, roundish, burting into three or four revolute valves, juicy within, of one cell. 

*Seeds* four, oblong.

Eff. Ch. Calyx coloured, in five deep spreading segments. Corolla none. Capsule inferior, pulpy, of one cell, and four seeds.

1. *V. thistrifolia.* Holly-leaved Valentinia. *Swartz* Ind. Oec. 680. Wild. n. 1. (Malpighia aquifolii amplifolius folia; Pluck. L. 167. f. 2. Ilex folio aquifolii americana; Pluck. Phyt. t. 195. f. 3.)—Native of the most barren ftony parts of Hifpamols, towards the ocean; also of Cuba, about the Havana, flowering in January. A *frub,* two or three feet high, branched, of a rigid habit, without thorns; the branches smooth. *Leaves* alternate, oblong, rigid, flaked, with axillary buds; their length three or four inches; their breadth more than one; their margins undulated, and beft with broad spinous teeth, like our common Holly; both surfaces smooth and veiney. *Flowers* at the ends of the branches, flaked, somewhat umbellate, scarlet. *Calyx* permanent. *Fruit* in an earlyflate snow-white, afterwards scarlet. *Seeds* three or four, smooth, imbedded in yellow pulp.—Burmann, with more of his usual fagacity, fuppofed this plant was not really *Malpighia,* because of its alternate leaves. Dr. Swartz thinks it belongs to the fame natural order as *Ilex,* but the want of a corolla, and the structure of the fruit, caufe fome difficulties.

VALENTINIAN I., in *Biography,* a Roman emperor, defended from an obscure family of Cithalis, in Pannonia, and born A.D. 321. Dedicated to the profefion of arms, he distinguiflied himfelf by attention to military discipline, and in the reign of Conftantine commanded a body of cavalry in Gaul. Under Julian he was tribune of one of the bands of imperial guards, and played his zeal for the Christian religion. On the accession of Jovian, he ferved in Gaul; and returning to the East, he was at Ancyra at the time of Jovian's death: and here he was raised to the purple by general ap- plaufe in 364, in the 43d year of his age. On his arrival at Conftantinople, he declared his brother Valens his partner in the empire. On the division of the empire (see VALENS), he referred to himself the western portion, confifiting of Illyricum, Italy, Spain, Gaul, Britain, and Africa. After this event he refided at Milan. Soon after, his reign was difturbed by an irruption of the Alemanni into Gaul. In 368 he crofed the Rhine with a powerful army, and having forced the camp of the Alemanni, he returned to Trecos, and fortified the banks of that river, so that Gaul was fe- cured from any danger during the remainder of his reign. The spirit of his government was that of vigorous discipline; and till he was corrupted by power, he paid a regard to justice and the public good; enacting many fa- luntary laws in favour of the poor and defecrated, providing for the instruction of youth, and exercifing toleration in matters of religion. Accordingly he allowed unmolefted liberty to Jews and Piftans, whilst he procribed magical rites, and punished thofe who practifed them. He also restrained the avarice and luxury of the clergy, and declared donations, that were injurious to families, illegal; and proceeded fo far as to incapacitate all persons of the ecclefiafical order from receiving any defamation bequeath, except fuch as came to them by inheritance.

Valentinian was rath and violent in his temper, and liable to be impofed upon by his迷你lers and officers. Among the other events of his reign, we may mention an invasion of the Alemanni by the Burgundians, at his {efigation;} the predatory incursions of the Saxons on the maritime provinces of Gaul; and the recovery of the Roman province in Britain from the invasion of the Picts and Scots. Being en-
camped near Bafl, in 374, he received intelligence that the Quadi had entered Pannonia, and that the Sarmatians had in- vaded *Mafia*; he advanced to the Danube, and crofing that river, laid waife the country of the Quadi with fire and fword. When the Quadi rebelled for peace, he menaced and re- proached them with fuch an excess of paffion, that he broke a blood-vefel, and fell fpeechlefs into the arms of his attend- ants. This difalter was foon followed by his death, which happened in 375, in the twelfth year of his reign, when he attained the age of about fifty-four years. The historian *Soates* affirms that he had two wives at a time, infufling an edict that extended the fame privilege to all his fubjefts. But this circumstance has been doubted, as no laws moin- ent with the religion and manners of the period in which he lived, than with his own difposition and character, for he does not seem to have been addicted to licentious pleasures. Hab- bituating himfelf to fenes of torture and death, he at length took delight in them; and he is faid to have kept two enor- mous bears near his perfon, which he employed as executioners, for his private amusement. Upon the whole, however, his government was beneficial; and whilst he defended the empire with vigour, he promoted its reputation and prosperity by good laws and useful institutions. Anc. Un. Hist. Gib- ton's Rom. Emp. Gen. Biog.

VALENTINIAN II., a Roman emperor, was the fon of the former by the empress Jufrina, and born in 371. On the death of his father, when his half-brother Gratian, his partner in the empire, was at a diftance, he was declared emperor by the principal ministers and officers of his deceased parent, and Gratian acquiefced in the appointment. His portion of the empire comprifed Italy, Illyricum, and Africa. As his mother was attached to the Arian fect, he was involved in a contref with Ambrofe, archbishop of Milan, and thus the people became defaified to her fon; fo that upon the death of Gratian, the usurper Maximus invaded Italy, and obliged Jufrina and Valentinian to take refuge in Aquileia. Hence they proceeded to Thelfalonia, and implored the affiftance and protection of Theodofius, emperor of the East. Theodosius having prevailed with Valentinian to renounce the Arian doctrine, promifed to support his caufe, and the confquences of his interpoftion were the defeat and death of Maximus, in the year 388. Upon this the young emperor was refored to his dominions; and difplayed thofe virtues which ferved to gain him the eulogy of Ambrofe and other ecclefiafical writers. Such was his religious zeal, that he refufed to grant the to his pagan subjects a reforation of their privileges to the heathen priests and temples. Whilst Valentinian was at Vienne, in Gaul, the barbarians on the frontiers of Italy threatened an invasion; but the emperor, before he exposed himfelf to the hazards of war, determined to be haptized, and fent for Ambrofe to administer the rite. He also volufed to engage the prelate's mediation with Arbo- gastes, the Frank, who had affumed an almost uncontrofled power over the government. He also fough the affiftance of Theodofius. In the mean while he received Arbogastes, whilk he was feated on his throne, and delivered to him a paper, expressing his difaffidion from all his employments. The Frank told him that his authority did not depend upon the will of a monarch, and threw the paper contemptuously on the ground. Valentinian was enraged, and attempted to avenge himfelf by wretting a fword from one of his guards; but his violence was reftrained. However, a few days after he was found hanged in his apartments, May, A.D. 392, being then in his twenty-fifth year, and having nominally reigned 16 years. Anc. Un. Hist. Gib- ton's Rom. Emp. Gen. Biog.

VALENTINIAN III., a Roman emperor, the fon of Pla-
old, filter of the emperor Honorius, by Constantius, one of that emperor's generals, who was born in the year 418, and after the death of Honorius, declared emperor of the West. In 437 he was married to Eudoxia, the daughter of Theodorus II, but during the life of his mother, who died in 450, he took no part in the government. The death of Attila caused him to retire from Ravenna to Rome, where he proposed terms of accommodation with this formidable enemy, which were accepted. The weaknesses and timidity of this emperor occasioned a jealousy of the famous general Actius, and base measures were secretly concerted for putting him to death. Valentinian himself perpetrated the foul deed of his affimation: and this act was followed by the murder of several of his friends. This detestable act, which took place in 454, was succeeded by the violation of the chaste and beautiful wife of Petronius Maximus, a wealthy senator. Her husband, as soon as he was informed of it, determined upon revenge; and for this purpose engaged two of the imperial guards who had served under Actius. One of these seized the opportunity of some military sports in the Campus Martius to flab the emperor to the heart. This event happened in March 455, when Valentinian was thirty-four years of age, and after he had borne the title of emperor twenty-two years. He was the last emperor of the race of Theodorus, and had all the weaknesses, with none of the virtues of that line. Anc. Uni. Hist. Gibbon. Gen. Biog.

VALENTINIANS, in Ecclesiastical History, an ancient and famous sect of Gnostics; thus called from their leader Valentinus, an Egyptian by birth, who was eminently distinguished by the extent of his fame, and the multitude of his followers. His sect, which took rise at Rome towards the close of the second century, grew up to maturity in the isle of Cyprus, and spread itself through Asia, Africa, and Europe, with amazing rapidity. His principles were much the same with those of the Gnostics, though, in many respects, he entertained opinions peculiar to himself. He placed in the pleroma, as the Gnostics called the habitation of the deity, thirty zeus, half male and half female: to these he added four others, which were of neither sex, viz. Horus, Christ, the Holy Ghost, and Jesus. The youngest zeus, called Sophia, or Wisdom, conceived an ardent desire of comprehending the nature of the Supreme Being, and by the force of this propensity, brought forth a daughter named Achamoth; who being expelled from the pleroma, fell down into the unglodified mass of matter, and arranged it; and, by the affidavit of Jesus, produced the demiurge, the lord and creator of all things. This demiurge separated the animal from the terrestrial world; and out of the former created the superior world, or visible heavens; and out of the latter, the inferior world, or the terraqueous globe. He also made man, uniting in his composition the animal and terrestrial matter, to which Achamoth added a spiritual and celestial substance. The demiurge, according to Valentine, arrogating the honours of God alone, sent prophets to the Jewish nation to urge his claims; and his ambition was imitated by the other angels that preside over the different parts of the universe. In order to chastise this lawless arrogance, and to illuminate the minds of rational beings with the knowledge of the true and supreme Deity, Christ appeared on earth, composed of an animal and spiritual substance, and clothed, moreover, with an aerial body. The Redeemer, in descending upon earth, passed through the womb of Mary; and Jesus, one of the supreme zeus, was united to him when he was baptized by John in Jordan. The creator of this world, perceiving that the foundations of his empire were shaken, caused him to be apprehended and nailed to the cross; but before Christ submitted to this punishment, not only Jesus the Son of God, but the rational soul of Christ, ascended up on high; so that only the animal soul and the ethereal body suffered crucifixion. Those who, abandoning the service of false deities and the worship of the God of the Jews, live according to the precepts of Christ, and submit the animal and ethereal soul to the discipline of reason, shall be truly happy; and when all the parts of the divine nature, or all souls, are purified thoroughly and separately from matter, then a raging fire shall spread its flames through the universe, and dissolve the frame of the corporeal world. Such is the doctrine of Valentine and the Gnostics; and such, in general, are the tenets of the oriental philosophy. The sect of the Valentinians was divided into many branches. See Ptolemaiots, Secundians, Heracleontites, and Marcionists. Moehlmann's Ecc. Hist. vol. III.

VALENTINUS, the founder of a sect of heretics, for an account of which, see VALENTINIANS.

VALENZA, in Geography, a town in Italy, in the department of the Gogno, on the Po; 6 miles N. of Alexandria.

VALEPONGA, in Ancient Geography, a town of Hithapania Citerior, at the eastern foot of mount Ubeda, near the source of the river Turia. In the Itinerary of Antonine it is marked on the route from Laminium to Toletum, between Ad Putea and Uribaca.

VALERE. See PERINDE VALERE.

VALERIA, VALERA, in Ancient Geography, a town in the interior of Hifpania Citerior, S. of Ergavia. Pliny reckons it in the number of colonies, and Ortelius gives it the epitaph of Julia. It was situated in Celtiberia, E. of Sueco, and W. of Lobetum.—Alfo, a town of the ile of Forica, which had the title of a colony, according to Ptolemey.—Alfo, a country of Germany, comprehending a part of Pannonia, and so called by Maximian, after the name of Valeria, his wife, the daughter of Diocletian. It was situated between the Danube and the Drave.—Alfo, the thirteenth province of Italy, to which Nurtia was annexed. It was between Umbria, Campania and Picenum, and comprehended the country of the Marsi and their lake, called "Lucus."—Alfo, a town of Italy, in Latium, on the Valerian way.

VALERIAN, P. LICINIUS VALERIANUS, in Biography, a Roman emperor, the descendant of an illustrious family at Rome, was betimes so distinguished by his attention both to civil and military affairs, that he was appointed consul and prince of the senate, and also cenfor. He occupied other stations of considerable trust and importance. At length his own troops proclaimed him emperor, in which choice every individual of the empire was diffpoused to concur. Accordingly he was invested with the purple A.D. 253, after having palled his sixtieth year. The commencement of his reign was rendered illustrious by many popular and laudable acts, from which eulogy, however, we must except the appointment of his son Gallienus, a vicious youth, to be his colleague in the empire; more especially as in the progress of it he had many enemies with whom to contend; among whom we may enumerate Fraunks, Goth, Allemane, and Perians, the latter of whom may be deemed the most formidable. When Antoninus was surprized and pillaged, under the indignation of Sapor, king of Persia, by Cyriades, who assumed the title of emperor, Valerian marched to the restitution of this city, and having expelled the Scythisans, who had taken possession of it, he hastened to cross the Ephorus, in order to relieve Edessa, which was besieged by Sapor. After a vain attempt for this purpose, he was reduced to the necessity of negotiating with the Persian king. The result, however, was, that
that he became a captive to Sapor, A.D. 260, and was treated cruelly and ignominiously in his captivity. This diff- 
tre was aggravated by the ingratitude of his fon Gallienus, who afforded him no relief in his captivity, but took advan-
tage of a report of his death to raise him to the rank of a 
' After languishing in this state for a considerable time, he 
died in Peræa; and it was rumoured, that after his death, his 
kins, stuffed with straw, was hung up in a temple, where 
Sapor exhibited it as an humiliating spectable to the ambas-
dadors from Rome. Valerian, whose administration was 
charged with want of vigour and activity in resisting the 
forces of the east, was not unjustly reproached as a perfe-
cutor of the Christians. Regarding them as the enemies of 
paganism, he issued an edict, which produced the eighth per-
fection, as it has been called by ecclesiastical historians, and 
which was both general and severe, and lasted from the year 
257 to the period of his captivity. The calamities which he 
suffered has been represented as a judgment upon him for 
this cruelty. He was twice married, Gallienus being the 
offspring of the first marriage; and by the second he had at 

VALERIANA, in Botany, a name which seems to have 
originated with the physicians of the dark ages, and which 
is evidently derived from valea, to be powerful, or efficacious, 
in allusion, as Caspar Bahum and Ambrofius tell us, to the 
many virtues of the plant. Linneaus, in Phil. Bot. 171, 
unaccountably ranks this name among those derived, like 
Gentiana, Eupatorium, &c. from kings.—Linn. Gen. 22. 
Garcke, t. 86.—Cals and order, Triandria Monogynia. 

Gen. Ch. Cal. scarcely any, except a flight border at the 
top of the germin. Cor. of one petal, irregular; tube 
swelling, or spurred, underneath the base, where it bears 
honey; limb in five obtuse segments. Stam. Filaments three, 
in some cafes fewer, awl-shaped, erect, the length of the 
corolla; anthers roundish. Fil. Germin inferior; style 
thread-shaped, the length of the stamens; stigma thickish. 
Peric. a crust, which does not split, deciduous, crowned. 
Seced solitary, oblong.

Eff. Ch. Calyx's obsolete. Corolla superior, of one petal, 
gibbous on one side, at the base. Seced solitary.

Obf. Linneaus remarks as follows on the wonderful 
diversitys of form and number in the parts of fructification, 
among the various species of this genus:

The calyx in some is a scarcely discernible border; in 
others five-creft. Tube of the corolla in some oblong; in 
a few furnished with a four-spurred corolla; in others very 
short. Its limb in some equal; in others two-tipped, the 
upper lip divided. Stamina in several three; in some two; 
in others one or four; in some removed to a different flower 
from the pitif. Sygma in some three-creft; in others emar-
ginate; in others globous. Pericarp in some fecezly any; 
in others a thick capulce; in others of two cells. Seced 
sometimes crowned with feathery down, whose form is 
various; sometimes without any.

By the above detail, the reader will be aware that Lin-
neaus includes under this genus the Fedia of Adamon, (see 
that article,) which is what Tournefort, Vaillant, and 
recently Decandolle, have called Valeriana. The same 
genus is adopted, under the late-mentioned name, by our 
worthy friend Mr. W. J. Hooker, in his continuation of 
Curtis's Flora Loddigesiana. Such diminutives of already 
established names, however, being contrary to the laws of 
Linneaus, Phil. Bot. f. 227 and 228, and, which is still 
more important, repugnant, in the highest degree, to good 
form, have never been admitted by any writer, even the left 
correct, since Linneaus has from unamalgulated sound principles of 
nomenclature, and can have been recommended by the 
excellent botanists, through inadvertence only. Fedia is, 
unexceptionable, and received by Vahl in his Enumeratio, 
must supercede Valeriana, provided the genus is allowed 
to remain, of which we have already expressed our doubts. 
We have indeed little scruple, all things considered, in 
rejecting it. (See our 33d, 45th, and following species.) 
But having already noticed Fedia in its proper place, we 
shall here confine ourselves to the generally admitted Val-
eriana, which constitute an ample genus, recently augmented 
by Vahl, whose arrangement of species we follow, from the 
Flora Peruviana, and other sources; to which we have also 
something to add.

The genus under consideration is composed of herbaceous 
plants, either perennial or annual, with an upright round 
flam, and opposite leaves; which are mostly simple; rarely 
ternate or, pinnate. Flowers terminal, numerous, opposite, 
corymbose or panicled; generally reddish, or flesh-coloured; 
rarely yellowish; fearfully blue. The roots of some are 
distingueed by a more potent and very peculiar odour.

(V. rubra Dodonaei; Ger. Em. 678. V. marina; Rivin. 
Monop. Irr. t. 3. f. 2. Phu peregrinus; Camer. Epit. 24.)

—Stamen one. Spur of the flower elongated. Leaves lan-
ccolate, nearly entire.—Native of walls, wall ground, 
chalk-pits, and dry hilly places, in England, Switzerland, 
France, the north of Africa, Greece, and other parts of 
the Levant. Certainly wild in the chalk-pits of Kent; 
flowering from June to September. The plant is common 
in gardens, and on old walls. A deep red variety is usually 
preferred for cultivation. The root is perennial, flat, or 
ther middity. Whole herb very smooth, a little glaucous, 
eighteen inches or two feet high. Upper leaves often 
toothed, broadly ovate, with a long point. Flowers pink, 
rarely white, slender, not inelegant, very numerous, in 
a dense repeatedly branched corymb. Seed-crown of many fe-
athery entangled rays, gradually unravelled after the flower is 
past.

n. 2. Vahl n. 2. Alt. n. 2. Cavan. Ir. v. 4. 32. t. 353. 
Sm. Fl. Græc. Sibth. v. 1. 22. t. 29. (V. rubra; Linn. 
Sp. Pl. 44. V. rubra angulifolia; Buhl. Hill. v. 3. 
part 2. 211.)—Stamen one. Spur of the flower elongated. 
Leaves linear-lanceolate, bluish, entire.—Native of hilly 
situations in France, Italy, Switzerland, and the Levant, 
but not yet observed in England. Dr. Sibthorp gathered 
it on the highest hills about Athens. This is very nearly 
related to the former, with which it agrees altogether in 
habit and flowers, but the leaves are all uniformly narrow, 
almost linear,quite entire, and more obtuse at the ex-
tremity.

44. Willd. n. 3. Vahl n. 3. Alt. n. 3. Sm. Fl. Græc. 
Sibth. v. 1. 22. t. 30. (V. folia calcitrapa; Morif. lect. 7. 
t. 14. f. 7. V. amma, fen adula; Chaf. Hist. v. 2. 54. 
Ger. Em. 1077.)—Stamen one. Corolla flatly spurred. 
Leaves all pinnatifid and feathery.—Native of Portugal, the 
north of Africa, the Levant, and even of Peru; but Vahl justly 
supposes its having been transported thither from Europe. 
It became a weed on many walls of that nation; having, 
due to the climate, escaped from the physic garden there. An 
Annual upright herb, fearlessly branched, flowering in May 
and
and June; the leaves slightly lyrate; flowers small, rose-coloured. Seeds spiked, with a feathery crown.

4. V. orbiculata. Round-leaved Valerian. Sm. Fl. Grac. Sibth. v. 1. 23. t. 31, marked retundifolia.—Stem one. Corolla slightly spurred. Lower leaves stalked, orbicular, somewhat heart-shaped, slightly toothed.—Gathered by Dr. Sibthorp and Mr. Ferdinand Bauer, on hills in the Isle of Cyprus, flowering in the spring. Annual, and agreeing in habit with the late, but of rather humber growth, and essentially distinguished by its round leaves, hardly an inch broad, purple beneath; the uppermost pair only being pinnatifid at their base. Flowers variegated with red and white, in twinline spikes, much elongated as the seeds ripen.

5. V. oblongifolia. Oblong-leaved Valerian. "Fl. Peruv. v. 1. 40. t. 65. f. a." Vahl n. 4.—"Hairy. Radical leaves oblong, toothed, obtuse; those of the stem linear, with tooth-like deep ferratures."—Found on the lofty mountains of Peru. Root fibrous, rather thick. Stems several, frigate, almost leaflets, except under the flowers; the central one tailed, eighteen inches high. Radical leaves stalked, diitantly toothed; the floral ones leaflet, linear-lanceolate. Flowers leaflet, in a dense corymb. Vahl.


7. V. Ph. Garden Valerian. Linn. Sp. Pl. 45. Wildl. n. 7. Vahl n. 6. Ait. n. 6. (V. hortense; Ger. Em. 1075. Rivin. Monop. Irr. t. 3. Phu magnitude; Puch. Fl. 856. Matth. Valgr. v. 1. 36.)—Radical leaves elliptical, undivided; the root pinnatifid, somewhat lyrated; the upper ones with lanceolate, acute, entire segments.—Native of Germany. An old inhabitant of our gardens, where it was anciaently called Setwall, or Cettivial. A large perennial species, flowering from May to July. Stems three or four feet high. Herbaceous smooth, light green, with spreading leaves, mostly lyrate, except those at the bottom. Flowers copious, pale purplish-blue-coloured. The flexible root has a peculiar aromatic scent, and is supposed to partake of the virtues of the Office Valerian. Cats are extremely fond of it, and delight in rolling themselves among the leaflets and leaves, which they thus frequently defray.

8. V. hyalorinorhiza. Transparent-rooted Valerian. "Fl. Peruv. v. 1. 41. t. 67. f. b." Vahl n. 7.—"Radical leaves roundish-filipatulate, crenate, undivided or auricled; those of the stem pinnatifid."—Found in dry sandy parts of Chile. Herb downy. Root tuberous, obovate, pellucid, infipid. Stems half a foot high, purplish. Radical leaves stalked; the innermost with an additional leaflet at each side; those of the stem diffus, connate, lanceolate. Corymb forked. Calyx obample. Corolla yellow. Seed square, crowned with minute teeth. Vahl.

9. V. crista. Curled Valerian. "Fl. Peruv. v. 1. 41." Vahl n. 8.—"Lower leaves ovate-oblong, with tooth-like ferratures; the root somewhat pinnate, with ferratted undulated leaflets."—Native of meadows, fields, and cultivated ground, in Chili. Root with many small fibres. Stems two feet high, branched, brittle, frigate, hollow. Leaves stalked; those of the stem more or less perfectly pinnate; their leaflets feffile, reflexed, wavy and crispated, gradually smaller downward; the odd one very large. "Chihuy forked. Vahl.

10. V. interrupta. Interrupted-leaved Valerian. "Fl. Peruv. v. 1. 42. t. 67. f. a." Vahl n. 9.—"Radical leaves interruptedly pinnatifid; their longer segments also somewhat pinnatifid. Stem nearly leaflets."—Found on the lofty mountains of Peru. Root perennial, thick, divided. Herb juicy and smooth. Leaves all radical, except a pinnatifid pair under the corymb, not much unlike those of Scorzonera laciniata. Stalks terminal, three together, each bearing a head of feffile flowers, with linear bracteas to each. Corolla white, five-cleft. Vahl.

11. V. lyrica. Lyrate Valerian. Vahl n. 10.—"Radical leaves lyrate; segments oblong, with tooth-like ferratures; the terminal one somewhat pinnatifid; those of the stem leaves linear-lanceolate."—Native of Peru; seen by Vahl in Jullieu's herbarium. Stem smooth, a fpan high, bearing two leaves. Radical leaves stalked, half the length of the stem; their terminal lobe very large, measuring two inches; lateral ones alternate; deeply and bluntly ferrated; stem leaves feffile, half an inch long; all smooth. Partial flowers stalks racemose, three-cleft, forked. The aspect of the plant is like V. calcitrare. Vahl.


13. V. globifera. Globular-headed Valerian. "Fl. Peruv. v. 1. 43. t. 65. f. b." Vahl n. 12.—"Hairy, fmemelles. Leaves pinnate; leaflets deeply toothed or frigate. Heads globose."—Native of the high mountains of Peru. Root rather thick, once or twice divided. Leaves radical, frigate, with fettile leaflets. Flowers stalks several, radical, frigate, with fettile leaflets. Flowerstalks several, radical, measuring four or five inches, scarcely longer than the leaves, round, frigate. Flowers fettile, in a globular head, with intermediate fpatulate, rather membranous, bracteas. Vahl.


15. V. polyphylla. Many-spiked Valerian. Sm. Pl. 1c. t. 51. Wildl. n. 19. Vahl n. 14.—Leaves pinnate; leaflets decurrent, nearly entire. Spike compound, whorled. —Gathered by Commeron, in watery situations at Buenos Ayres. Stem two feet high at leaf, ascending, frigate, smooth, leafy. Leaflets smooth, nearly uniform, about an inch and half long; the odd one now and then slightly toothed; the lowermost much diminished. Flowers white, very numerous, in dense cipious awholes, subtended by lanceolate
VALERIANA.

colate bracteas, and forming a compound spike, not unlike that of some Mentha. It is doubtful whether the seed has any feathery crown.

16. V. officinalis. Great Wild Valerian. Linn. Sp. Pl. 45. Willd. n. 6. Vahl n. 15. Ait. n. 5. Fl. Brit. n. 3. Engl. Bot. t. 698. Curt. Lond. facs. t. 3. Woodward. Med. Bot. t. 96. Fl. Dan. t. 570. (Valeriana; Rivon. Monop. t. 1; and V. foliis angustibus; ibid. t. 2. V. major fylvefris; Ger. Em. 1075. Piit.; Column. Phytob. 114. Ph. parvum; Matth. Valgr. n. 377. Ph. minus; Cramer. Epit. 22. Ph. germanicum; Fuech. Hift. 837.)—Leaves all pinnate; leaflets lanceolate, ferrated, nearly uniform. Common in marshy places, the banks of rivers, or hilly groves and thickets, flowering in June, throughout the more northern parts of Europe. Root perennial, fibby, aromatic, but with a strong and peculiar, very nauscent, flavour, highly grateful to cats. Stem about four feet high, furrowed, leafy. Leaves forked, from eight to twelve inches long; leaflets of the radical ones, in the upland variety, somewhat broader, and more ovate, than in the marsh kind; while those of the stem, in the same variety, are sometimes very narrow and entire. Flowers numerous, flesh-coloured or white, in large corymbose tufts. Seed crowned with large feather down.

This plant having, till very lately, seen no specimens, has been generally taken for the famous 560, or Valerian, of Dioscorides, and has been universally employed in medicine, for the cure of nervous head-aches, hysterical and epileptic disorders. The mountain kind, being less acrid and more aromatic, is preferred for use, and is kept in all apothecaries' shops, in whose "compound of villaneous smell" its flavour notably predominates.

17. V. Dioecoides. Ancient Grecian Valerian. Sm. Fl. Grac. Bibth. v. 24. t. 33. (Ph; Diosc. book 1. chap. 10.)—Stamens three. Leaves all pinnate; leaflets of the lyrate radical ones ovate, with wavy teeth. Root tuberous.—Gathered by Dr. Sibthorp near the river Lycia, as we are informed by Mr. Hawkins, the learned companion of his tour. The professor himself riffs, of all modern botanists, discovered this plant, and justly concluded it to be the real 560, for which our common wild Valerian has been always mistaken. The oblong tuberous perennial root has a much more pungent, peppery, more durable, and yet less nauscent, odour than the last described. The stem is hollow, simple, two feet high. Herb smooth. Radical leaves numerous, lyrate, disfigured by the ovate form, and wavy margin, of all their leaflets, of which the one odd is much the largest, and somewhat heart-shaped: those of the stem few, lanceolate, narrow, partly ferrated. Flowes very like the last.

18. V. italia. Italian Valerian. Lamarck Illutrit. v. 1. 92. Vahl n. 16. (V. tuberoa; Imperatio Hist. Nat. 656. Bauh. Hist. v. 3. part 2. 207. V. tuberoa Imperati; Tourn. Cor. 5. Barcel. Ic. t. 825. V. zenanthes radice; Moril. fecr. 7. t. 15. f. 4.)—Stamens four. Leaves all pinnate; leaflets of the radical ones ovate, nearly uniform, sharply toothed. Root tuberous.—Gathered by Imperato on the mountains of Liguria. We have only his figure, which all authors have copied, to guide us; except Vahl's description, made from a specimen in Jussieu's collection. This appears very nearly the same with our V. Dioecoides, especially the root, which is said to smell like Nard. The leaves however are represented as much more strongly toothed, more equally pinnate, and not lyrate; the upper pair indeed have narrow entire leaflets, remmbling our last. The flowers are white, more densely corymbose, and affected by Lamarck to have four flanneas, which, if correct, and contrast, indicates an essential difference. It would be very defrable to compare specimens of this Italian Valerian with those of Dr. Sibthorp.

19. V. fimbriifolius. Water-cresc-leaved Valerian. Vahl n. 17. (V. orientalis, fimbrii Matthioli folio; Tourn. Cor. 6.)—"Leaves all pinnate; leaflets roundish-ovate, entire."—Native of the Levant; examined in Jussieu's herbarium by Vahl, who declares it, contrary to Buxbaum's opinion, to be totally distinct from V. dioica. The plant resembles Sifymbrium rofulatum. Stem from the fruit, and the root, high, finely fratted, smooth, as well as every other part, leaflets; the outer pair of leaflets, of which are smaller, alternate, and more ovate: the innermost of which are smaller, alternate, and more thinly fratted; the outer feffile and opposite; the odd one an inch long, ovate or roundish, very blunt, obscurely ribbed; sometimes the top leaves are ternate only. Flowers in a dense, level-topped, nearly simple corymbs, remmbling those of V. officinalis. Bracteas linear, shorter than the flower. Stamens three. Style three-cleft. This appears, by the above description of Vahl, to be likewise related to V. Dioecoides. We have seen neither specimen nor figure.

20. V. capengii. Cape Valerian. Thunb. Prodr. 7. Willd. n. 5. Vahl n. 18.—"Leaves pinnate; leaflets ovate, toothed. Stem hairy at the joints."—Found by Thunberg at the Cape of Good Hope. The stem is said to be furrowed; smooth, except the joints. Corynbs forked.


22. V. decussata. Cross-branched Valerian. "Fl. Peruv. v. 1. 42. t. 70. f. b." Vahl n. 20.—"Leaves pinnate; leaflets lanceolate, finely toothed; hairy and downy beneath. Branches of the panicle forked and diarivated."—Found about hedges, and floty places, in Peru. Stem herbaceous, though somewhat climbing, three feet high, fratted, hairy, a little downy. Leaves on short flalks; leaflets gradually larger outwards, dinantly and minutely toothed; downy above; more densely so beneath. Panicles very large, with horizontal partial flower-flalks. Bracteas under each division linear. Corolla minute, white. Seed crowned with ten or twelve rays. Vahl.


The flowers grow in lateral, somewhat forked, spidik panicles. Corolla tubular, greenish-rose-coloured, with five equal spreading teeth. Stamens three. Seeds comprefsed, ovate, fratted, with a feathery crown. Loefling. We have never seen, or heard of, a specimen of this plant in Europe, Linnaeus having described it from Loefling's authority only.

24. V. fangiflorulub. Burnet-leaved Valerian. Caian. Ic. v. 5. 34. t. 456. Vahl n. 22.—"Leaves pinnate; leaflets ovate, toothed. Corynbs compound. Stem hairy at the joints.—Native of the Cordilleras of Chili, flowering in January. The stem is about a foot high, ascending, leafy. Radical leaves forked, of about six pair of small, roundish-
roundish-ovate leaflets, furnished with one or two broad blunt teeth at each side; the odd one much more elongated and narrower. Branches of the pinnate compound, corymbose. Seed-crown of ten feathery rays.

25. V. virgata. Many-twig'd Valerian. "Pl. Peruv. v. 1. 42. t. 66. f. b." Vahl n. 23.—Leaves pinnate; leaflets cloven or three-cleft, with linear segments. Branches of the corymb forked.—Native of precipices in Peru. Smooth, with the habit of Tagetes minuta. Stem rather shrubby, three feet high, much branched, square, fluted, scarcely hollow, obscurely downy; the branches upright and wand-like. Leaflets minute; some undivided; others with two, three, or four, linear, emarginate or entire, segments; shining on the upper side. Partial flower-heads forked, with opposite linear bracteoles. Flowers sessile in the forks. Seeds irised on one side, gibbous on the other. Vahl.


—Not very uncommon in flowy ground, on the alps of Switzerland, the Grisons, Germany, and the Pyrenees, flowering in July and August. The root is long, creeping, perennial, with a flight degree of the flavour belonging to this genus. Stem a foot high, more or less, ascending, leafy, unbranched. Radical leaves on long stalks, heart-shaped or spatulate, acute, smooth, an inch or two in length, with various broad, slender, wavy teeth; the rest more oblong and pointed, on short stalks. Flowers numerous, corymbose, small, pale flesh-coloured.

27. V. intermedia. Ambiguous Valerian. Vahl n. 25.—"Leaves simple, nearly entire; the lowermost oblong-heart-shaped; uppermost lanceolate; three pairs on the stem."—Brought from the Pyrenees by Mr. Hornemann. Akin to the last, though the leaves being not heart-shaped, nor toothed, as in that, but lanceolate and entire, induced Professor Vahl to reckon it distinct.

28. V. tripteris. Three-leaved Valerian. Linn. Sp. Pl. 45. Willd. n. 8. Vahl n. 26. Ait. n. 7. Jacq. Aul. t. 268. (V. alpina prima; Bauh. Prod. 86. V. alpina faxatilis minor, flore albo; Barcel. 1. t. 742. V. alpina minor, et minimia; Pluk. Phyt. t. 231. f. 7. 8.)—Leaves toothed; the radical ones heart-shaped, simple; those of the stem lanceolate, ovate-oblong; their lateral leaflets lanceolate. Found on the alps of Austria and Switzerland, intermixed with V. montana, but flowering a little earlier, and the flowers are more generally white. Nevertheless, these two species are so very nearly akin, that we could almost suspect them to be varieties of each other, and that Vahl's intermedia may belong to one and the same species.

29. V. villosa. Downy Valerian. Thunb. Jap. 32. t. 6. Willd. n. 18. Vahl n. 27.—Stamens four. Corolla equal. Leaves densely downy; the radical ones auricled; floral ones toothed.—Native of various places in Japan, flowering in September and October. The root appears to be perennial. Whole herb densely downy or hairy, a span high, unbranched. Leaves all toothed; the radical ones flaked, oval, near two inches long, with a pair of much smaller confluent auricles. Pinnate corymbose, forked. Flowers yellow. Wildmenow refers this species, like V. fibrica, to the Fedia, but Vahl makes it a Valeriana. Having seen no specimen, we are unable to form a decided opinion, the fruit not having been noticed by Thunberg, whose figure and description are our only authority.

30. V. pyreica. Heart-leaved Valerian. Linn. Sp. Pl. 46. Willd. n. 14. Vahl n. 28. Don. Herb. Brit. f. 477. Sm. Compend. ed. 2. 8. Engl. Bot. t. 1591. (V. maxima, caulis folio; Pluk. Phyt. t. 232. f. 1. V. canadensis; Rivin. Monop. Irr. t. 4.)—Stem-leaves heart-shaped, serrated, all flaked; the upper ones pinnate or ternate.—Native of the Pyrenees, and of Scotland; having been found by the late Mr. George Don, about ditches and walls at Blair-Adam, Kinross-shire, and subsequently near Glasgow and Edinburgh, flowering in June. Dr. Brown of Glasgow has also met with this plant in several woods of the south of Scotland, widely separated from each other. It is perennial, from three to five feet high, of a flout habit, and dark green hue, nearly smooth, pollissng the smell, probably the virtues, of V. officinalis, Discoreis, &c. Stem downy about the foot, as are the roots of the flower. Leaves large, with copious, unequal, tooth-like serratures; the radical ones, sometimes the others, simple; but for the most part the stem-leaves bear one or two pairs of small lanceolate leaflets on their stalks. Flowers rose-coloured, in a dense, large, compound, terminal corymb. Stamens three.

31. V. alliariesefolia. Garlick-mustard-leaved Valerian. Vahl n. 29. (V. orientalis, alliaries foio, flore albo; Tourn. Cor. 6. Buxb. Cent. 2. 19. t. 11.)—Leaves heart-shaped, unequally toothed, all simple; the upper ones sessile.—Gathered by Turnefort in Cappadocia. Distinguished from the last, with which Linneus confounded it, by being perfectly smooth, with thinner leaves, besides what is expressed in the specific definition. Vahl examined Turnefort's original specimen. The flowers are white.

32. V. hypaphisfolia. Dock-leaved Valerian. Vahl n. 30.—"Leaves heart-shaped-ovate, undivided, nearly entire; the upper ones sessile."—Gathered by Commenon, in the fraits of Magellan. Root perennial. Stem a foot or more in height, as thick as a quill. Leaves three inches long, gradually smaller upward, acute, entire, or sometimes slightly crenate, ribbed, obscurely veined, smooth, except the upper side of the ribs; those at the root, and lower part of the stem, stalked; upper pair sessile; lowest floral leaves linear, obtuse, fringed at the base. Flower-flasks corymbose; the axillary ones opposite, of few flowers; terminal ones three-forked, many-flowered. Stamens three. Vahl. We find no specimen of this species among the large communications of M. Thouin to the younger Linneus.

33. V. vonaefolia. Fleathy-leaved Valerian. Sm. Plant. 1. t. 52. Willd. n. 22. Vahl n. 31. (V. magellanica; Lamarck Illust. v. 1. 93.)—Leaves oval, toothed, fleshy, glaucescent; the radical ones on long stalks.—Gathered by Commenon, in the fraits of Magellan. Stem about a foot high, erect, simple, smooth. Leaves all, according to Commenon, thick, succulent and glaucous; radical ones obtuse, an inch or inch and half long, with broad unequal teeth; tapering at the base, into a footstalk twice or thrice their own length; stem-leaves about three pair, much smaller, nearly sessile. Flowers purple, nearly regular, triandrous, in small, dense, level-topped corymbs. Seed crowned with teeth, rather than with feathery down; so far at least as we can judge from our specimen. It is not impossible that this species may be a Fedia, as Wildenow makes it; though the seed, like that of Fedia (or Valeriana) Corncopias, resembles true Valerians. Indeed our vonaefolia and polyphylla appear to form, through V. Corncopias, the connecting links of these two genera.


—Native of the mountains of Italy and Dauphiny. The root is cylindrical, woody and perennial, branched at the top, and crowned with many tufts of oblong-lanceolate, or spatulate, falked leaves, more or less obtuse, of a much thicker texture than the leaf, an inch and half long. Stems solitary, two or three inches high, bearing near the middle a pair of combined smaller leaves, occasionally jagged or pinnaled at the base. Sometimes there is a similar pair lower down. The flowers are crowded into a round head, sometimes accompanied with two small corymbose branches just below, and subtended by two or four oblong entire bracteas, as well as intermixed with smaller ones, all slightly fringed. Stamens three. Seed flatted, with a feather crown. The herb is smooth in every part, except the bracteas, and very strongly scented.

40. V. celtica. Celtic Nard Valerian. Linn. Sp. Pl. 46. Wild. n. 10. Vahl n. 38. Ait. n. 9. Jacq. Coll. v. 1. 24. t. 1. (V. n. 209; Hall. Hist. v. 91. Nardus celtica; Ger. Em. 1079. Spica celtica; Camer. Epit. 14.)—Leaves oblong, obtuse, entire, rather fleshy, quite smooth. Flowers racemose; partial flanks capitatis.—Native of the Alps of Austria, Switzerland, &c. Root oblong, creeping, fleshy, with a very powerful and oppressive peppery smell. Herb of the nature of the falk, with fleshy, smooth, but always entire, leaves. Inflorescences widely different, so that these Species can never be confounded by those who have few in them in flower. The calyx of the present is about two inches long, lax; each branch, whether simple or forked, terminating in a little bracteated head, of three or four fleshy yellowish flowers, with three flammes. The seed has a feathery crown, and is sometimes covered with dense hairs.

35. V. Spica. Spikenard Indian Valerian. Vahl n. 33; ("V. jetamand; John in Ac. Bengh. (Astatic Reche.) v. 2. 405. v. 4. 433, with a figure."")—"Radical leaves heart-shaped, whole of the flem oblong."—Native of Bengal. The Rev. Dr. John supposes it the Spikenard of the ancients. The root is perennial, somewhat branched, covered with bristles in the upper part. Stem from fix to twelve inches high; its base entire, encompased with fibres. Leaves smooth; the two lowermost heart-shaped-oblong, waved, acute. Corymb forked. Vahl.

36. V. elongata. Long-clustered Valerian. Linn. Sp. Pl. 1664. Wild. n. 13. Vahl n. 54; Jacq. Enum. 203. t. 1. Ait. t. 219. (Nardo celtica simila alta, five Valeriana alpina minor; Linn. Ann. Acad. v. 1. 154.)—Radical leaves ovate, wavy; those of the flem sessile, somewhat heart-shaped, broadly toothed and cut. Panicle loose, elongated.—Native of the Auffrian mountain of Schneeberg. We have specimens also, gathered by Mr. Sieber, from Carinthia; and one found by Scopoli in Carniola. This is one of the rarest alpine plants, and appears never to have been seen by Vahl. It is perennial, flowering in June and July. Root long, slender, with numerous long fimples fibres. Stem from fix to five inches high, slender, leafy, smooth like the rest of the flem. Leaves from an inch to an inch and half long, molly ovate; the upper pair small, narrow, and jagged. Flowers small, pale yellow, with a tawny tinge, forming a lax, racemose, forked, compound panicle, about two inches long. We have not seen the crown of the seed, nor does any author describe it.

37. V. fujina. Dwarf Valerian. Linn. Mant. 27. Wild. n. 17. Vahl n. 35; Ard. Spec. f. 2. 13. t. 3. Wulf. in Jacq. Misc. v. 2. 114. t. 17. f. 2.—Leaves fimple, fpatulate, entire, fringed; the uppermost lanceolate.—Found about the boggy sandy margins of mountain rills, on the alpine heights of Austria, Carinthia, and the Tyrol, near the limits of perpetual snow. The creeping perennial roots throw out many trailing feyons, and are crowned with several dense tufts of falked, obovate, bright-green leaves, smooth on both sides, finely fringed with fhort hairs. Stems two or three inches high, more or less leafy, corymbose at the top. Bracteas long, lanceolate, acute, fringed. Flowers of a delicate rose-colour. Stamens occasionally four. Seed-crown long and feathery.

38. V. faxatilis. Rock Valerian. Linn. Sp. Pl. 46. Wild. n. 12. Vahl n. 6; Ait. n. 11. Jacq. Ait. t. 267. (V. fylverfolia alpina altera faxatilis; Clus. Hist. v. 2. 56. V. alpina angustifolia; Ger. Em. 1077.)—Leaves fimple, undivided; radical ones elliptical, three-ribbed, rather hairy, entire, or finely toothed; those of the flem linear. Corymb racemose.—Native of the alps of Styria, Italy, and Austria, but rarely in the latter country, as we are informed by professor Jacquin, jun. to whom we are indebted for specimens. The root is perennial, crowned with fibrous remains of old leaf-flalks. Stem a fpan high, slender, smooth. Radical leaves on long flalks, erect, an inch and half or two inches long, obtuse, almost perfectly entire, a little hairy occasionally; tapering at the base: those on the flem long and narrow, falked, sometimes a little jagged, scarcely more than one pair, about half way up the flem, except the till narrower and smaller bracteas at the base of the inflorfection. Flowers few, white, corymbose, each little tuft supported by a very long slender flalk. Jacquin affirms them to be dioecious. He gives no account of the structure of the seed-crown, nor do we find that part anywhere described.


—Native of the mountains of Italy and Dauphiny. The root is cylindrical, woody and perennial, branched at the top, and crowned with many tufts of oblong-lanceolate, or spatulate, falked leaves, more or less obtuse, of a much thicker texture than the leaf, an inch and half long. Stems solitary, two or three inches high, bearing near the middle a pair of combined smaller leaves, occasionally jagged or pinnaled at the base. Sometimes there is a similar pair lower down. The flowers are crowded into a round head, sometimes accompanied with two small corymbose branches just below, and subtended by two or four oblong entire bracteas, as well as intermixed with smaller ones, all slightly fringed. Stamens three. Seed flatted, with a feather crown. The herb is smooth in every part, except the bracteas, and very strongly scented.

40. V. celtica. Celtic Nard Valerian. Linn. Sp. Pl. 46. Wild. n. 10. Vahl n. 38. Ait. n. 9. Jacq. Coll. v. 1. 24. t. 1. (V. n. 209; Hall. Hist. v. 91. Nardus celtica; Ger. Em. 1079. Spica celtica; Camer. Epit. 14.)—Leaves oblong, obtuse, entire, rather fleshy, quite smooth. Flowers racemose; partial flanks capitatis.—Native of the Alps of Austria, Switzerland, &c. Root oblong, creeping, fleshy, with a very powerful and oppressive peppery smell. Herb of the nature of the falk, with fleshy, smooth, but always entire, leaves. Inflorescences widely different, so that these Species can never be confounded by those who have few in them in flower. The calyx of the present is about two inches long, lax; each branch, whether simple or forked, terminating in a little bracteated head, of three or four fleshy yellowish flowers, with three flammes. The seed has a feathery crown, and is sometimes covered with dense hairs.


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of Peru. The habit of this species is like Polygonum Peru-
caria. Stems several, much branched, with a grey bark; 
branches ascending, straight, jointed, somewhat sheathed, 
hollow; marked when young with two downy lines, alter-
nately crossing each other, of a dark tawny colour, frilated. 
Leaves tapering and fringed at the base, but otherwise 
smooth. Common flower-flalk elongated; partial ones op-
posite, three-cleft, with a pair of small combined leaves 
at each side. Bracteas lanceolate Obtuse. Calyx bordered. 
v. 1. 39. t. 66. f. a." Vahl n. 42. "Leaves lanceo-
late, entire, revolute. Corymbs racemose."—Native of 
the colder regions of Peru. This has the aspects of Plantago 
albicra. Root branched. Stem solitary, occasionally two 
or three, erect, a foot high, frilated, bearing two linear 
leaves about the middle. Radical leaves very numerous, six 
inches long, unequal, erect. Corymbs opposite, in the upper 
part of the stem, with from three to five partial spikes. 
Flowers sessile, in a head, with obovate bracteas intermixed. 
v. 1. 39. t. 66. f. a." Vahl n. 42. "Hairy. Leaves lanceo-
late, entire, revolute. Corymbs racemose."—Native of 
the colder regions of Peru. This has the aspects of Plantago 
albicra. Root branched. Stem solitary, occasionally two 
or three, erect, a foot high, frilated, bearing two linear 
leaves about the middle. Radical leaves very numerous, six 
inches long, unequal, erect. Corymbs opposite, in the upper 
part of the stem, with from three to five partial spikes. 
Flowers sessile, in a head, with obovate bracteas intermixed. 
v. 1. 40. t. 68. f. a." Vahl n. 43. "Leaves wedge-shaped-
lanceolate, minutely toothed, fringed. Flowers in whorled 
spike."—Native of cold situations, on the lofty mountains 
of Peru. Root tapering, perennial, divided in its lower 
part. Stem nearly a foot high, frilated, downy with deci-
duous hairs; naked below; leafy above. Radical leaves im-
bricated, five or eight inches long, channelled, tapering at 
the base; purplish externally; the floral ones three or four, 
lanceolate, smooth on both sides, finely toothed and fringed, 
as well as the radical ones. Flowers sessile, in crowded 
whorls, the lowest whorl only being dilant from the rest. 
Bracteas short, wedge-shaped. Seed oblong, crowned with 
five scales. Vahl. It is manifest that this species and the 
three following are as much entitled to be ranked with Fedia 
as many others. 
40. t. 68. f. c." Vahl n. 44. "Leaves wedge-shaped-lan-
colate, terraced towards the extremity. Flowers in whorled 
spike."—Native of cold situations in Peru. Root peren-
nial, thick. Herb tufted, smooth. Stems several, frilated, 
nearly leafless; the middle one fix inches high, leafy under 
the flowers. Radical leaves numerous; floral ones frilated 
at the extremity. Spike terminal, five or six inches long. 
Flowers sessile, in many-flowered whorls, of which the 
lower ones are dilant, the upper crowded. Bracteas wedge-
haped, membranous between the flowers. Seed oblong, 
crowned with five scales. Vahl. 
t. 65. f. c." Vahl n. 45. "Stem none. Leaves lanceo-
late, aggregate, imbricated, spreading, the upper ones gra-
dually smaller."—Native of the mountains of Peru. Root 
spindle-shaped, perennial. Radical leaves extremely nu-
merous, spreading in the form of a rofe, an inch and half long, 
enure, with a cartilaginous edge, coriaceous, rigid, without 
arb or veins; minutely dotted on both sides; shining on the 
upper surface; fringed towards the base; terminating in a 
rather pungent point; lying over one another in an imbric-
ated manner, the innermost being gradually smaller. 
Flower-flalks, if any, very short, in the centre of the leaves, 
compressed, white, tapering at the base. Flowers with a 
general, as well as partial, involucrum, each of one leaf, 
heathing, divided. Calys a very minute border. Stigma 
v. 1. 39. t. 65. f. a." Vahl n. 46. "Stem none. Leaves 
linear-awl-shaped, aggregate, feffile, imbricated, spreading; 
the outermost very long.—Native of the mountains of Peru. 
Root perenniial, spindle-shaped. Radical leaves numerous, 
unequal, spreading in the manner of a fir, entire, veins, 
smooth and flinching, with a rather rigid point; dilated 
and membranous at the base; dilated in their lower part. In 
other respects this species agrees with the latl, both being 
widely different in habitat from the rest of their genus. 
Vahl. 
Valeriana, in Gardening, contains plants of the hardy, 
herbaceous, perennial kind, among which the species cultivated 
are, the common or broad-leaved red valerian (V. rubra); 
the narrow-leaved red valerian (V. angustifolia); the 
cut-leaved valerian (V. calcitrapa); the garden or white 
Alfian valerian (V. phu); the three-leaved valerian (V. 
tripetra); the mountain valerian (V. montana); the Celtic 
valerian (V. celtica); the tuberous-rooted valerian (V. tu-
berofa); the Pyrenean valerian (V. pyrenaica); the official 
valerian (V. officinalis); and the common corn-fallad, 
or lamb's lettuce (V. oitioria). 
The first fort differs in some degree in the colour of its 
flowers; they being in some plants of a deep red, in others of 
a pale red, a bright red, and there are others which have white 
flowers. The second fort has bright red flowers, smaller than 
thofe of the former. The third is an annual plant, which has 
the flowers shaped like those of the fourth fort, but smaller, 
and tinged with flesh-colour at the top: it and varies with the 
lower leaves pinnaflid. The fourth fort has the branches 
terminated by bunches of small white flowers, the colour of 
which is very agreeable. The fifth has the flowers numer-
ous, white, and in loose bunches. In the sixth fort the stem 
is upright, simple, a foot or eighteen inches high, with the 
flowers of a whitish or purplish colour, in a bunch. The 
seventh fort has the item flender, simple, and terminated by 
a few small whitish flowers in a bunch. The eighth fort is 
easily distinguished by its tuberous roots; and there is a 
variety with the roots in the form of an olive. The ninth 
fort has the item and branches terminated by umbels of pale 
fiish-coloured flowers, with very short spurs. The tenth 
fort has the flalks two feet high, all of which and the 
branches are terminated with umbellate clusters of flowers 
tinged with purple. The laft fort has the flowers very 
small, of a pale blueish colour, and collected into a clofe 
little bunch. It is used in fallads in the early spring and 
winter, under the name of corn-fallad, or lamb's lettuce. 
There is a variety which is smaller, with jagged leaves: 
the fizes of the leaves also differ much, being in some nar-
row, and in others broad, and likewise in the flape; but they 
are all used indifferently as fallad herbs while young. 
Method of Culture.—The two first forts may be increased 
by parting the roots, and planting them out in the autumn 
or spring leafon, where they are to grow. 
They may also be raised from seed fown at the fame times, 
in the situations where the plants are to grow. The third 
may likewise be raised from seeds, by bowing them as above, 
without any trouble. The fourth may be increased by 
parting the roots, and planting them out in the autumn, on 
fresh ground where they are to grow. The fifth may be 
raised
raised in the same way, being allowed good room, as it spreads much. The three following doses are more difficult to prefer, requiring a strong foil and cold exposure. The ninth dose may be raised from seeds sown in a moist shady border soon after they are ripe, managing the plants as in the first dose. The tenth dose, as well as the fourth, are mostly cultivated as medicinal plants, for which purpose they should be disposed in beds with others of the same kind. They may be raised by parting the roots, as well as by the seeds. The last dose, when cultivated for the purpose of a fallow, should be sown in the latter end of summer, or beginning of autumn, in an open place, where it is to grow; the plants being afterwards thinned out by hoeing, and kept clean from weeds; when they will be fit for use very early in the spring while quite young.

All the doses, except the last, may be introduced in the borders, for the purpose of variety, and most of them continue many years. They may all be had at the proper planting feasons, as the autumn, winter, and spring, in the public nurseries gardens.

The last is used as an early spring fallow-herb.

VALERIANA, in the Materia Medica. There are various kinds of valerian; but those chiefly in medical ufe are the large garden valerian, valeriana officinalis; called by Dioscorides, valerian of Plu, folio abstrati; and the valeriana fuchstata, or great wild valerian.

The former is an ingredient in Venice treacle; its chief ufe is in disorders of the nerves; in which respect, however, it is held inferior to the latter.

The wild valerian, valeriana officinalis of Linnaeus, or valeriana fuchstata major montana of Bauhin, is perennial, and grows wild in dry mountainous places. The root consists of tough twigs, with numerous smaller threads, matted together, issuing from one head, of a dull-brown colour approaching to olive. Cows eat the leaves, and cats are very fond of the roots. Rats are also said to be equally fond of these roots, and rat-catchers employ them to draw the rats together. Another species, or variety, of wild valerian is met with in moor watery grounds, distinguitahable by the leaves being broader, and of a deep glossy-green colour. Both sorts have been used indiscriminately; but the mountain sort is much the moft efficacious, and is, therefore, expressly ordered for the officinal species by the London College.

The mountain valerian, or narrow-leaved variety of this species, not exceeding two feet in height, and affecting dry heaths and high pastures, is chiefly in repute: its root manifests stronger fefible qualities, and poses itself more medicinal power: its smell is strong, resembling that of a mixture of aromatics with fetids, and it has an unpleafant, warm, bitterish, labradic taste: the strength of the smell and taste is the only certain tell of its genuineness and goodnefs. It is a medicine of great efficacy against obftinate hemorhan, hypertenfion and the different kinds of nervous disorders, and is commonly confidered as one of the principal antifeptic medicines. Dioscorides and Galen mention it as an aromatic and diuretic. Columna reports, that he was cured by it of an invertebrate epilepsy after many other medicines had been used in vain.

M. Marchant, in the Memoirs of the Academy of Sciences, has confirmed this virtue, by many inftances within his own knowledge: and what is very remarkable is, that in the two obervations he enlarges most upon, the patients, on taking it, voided great quantities of worms. His cuflom was always to purge before he administered it.

On more extensive trials it has been found, in some epileptic cafes, to effect a cure, in several to abate the violence or frequency of the fits, and in many to prove altogether ineffectual: oftentimes it either purges or operates by sweat or by urine, or brings away worms, before it prevents a fit. The dose of the root in powder is from a drachm to two, which may be repeated, if the flomach will bear it, two or three times a day. Dr. Withering says, that in habitual colliquiments it is an excellent medicine; and frequently loosens the bowels when other stronger purgatives have been tried in vain. A remarkable influence of its efficacy in a catalepsy is given by Mr. Musgrave (on the vis vitae, &c.) doses of half an ounce of the powder were exhibited twice a day, and a less quantity was found ineffective.

The advantages said to be derived from this root in epilepsy, caufed it to be tried in several other complaints denominated nervous, particularly those produced by increased mobility and irritability of the nervous system, in which it has been found highly serviceable. Bergius states its virtue to be antifeptic, diuretic, emmenagogue, diuretic, and anehimetic. And under the head of its ufe, he enumerates epilepsy, convulsions, hysteria, hemorhan, and vitus herbud. Fordyce commends it in this last difpance. Wynt, who joined it with manna, experienced its utility in epilepsy. M. Morgan found it ufeful in resolving glandular or flumous tumours. Dr. Cullen allows, that its antifeptic activities are well eftablifhed, and he thinks it should be given in larger doses than thofe that are commonly ufed. Accordingly he has found it frequently ufeful in epileptic, hysteric, and other fapmodic affections. It is faid, however, that it has been sometimes given in cafes of epilepsy, to the extent of two ounces a day without effect; and Dr. Woodville obferves, that his own experience warrants him in faying, that it seldom has been found to answer the expectation of the preffurer.

The powdered root, infufed in water, or digifte in redlifted spirit, impragnates both menilura strongly with its uell and taste, and tingies the former of a dark brown, and the latter of a brownish-red colour. Water diftilled from it smells confiderably of the root, but no effential oil separates: the extract obtained by infufitating the watery infufion, which is about one-fourth the weight of the root, has a pretty strong taste, disagreeably sweet, and fomewhat bitterish: the spirituous extract, which is about one-eighth the weight of the root, is fels disagreeable, and more perfectly resembles the root itself.

Tinctures of it are prepared in the offops, by digifteg four ounces of the powdered valerian in a quart of proofsprit, in the fame quantity of the volatile aromatic spirit, or of the dulcified spirit of fal ammoniac. The root in fubfance, however, is generally found to be more effeetual than any preparation of it: and its flavour may be better covered with mace, Lewis and Woodville.

VALERIANELLA, in Botany, the diminutive of VA- LE-RIANA, the article and Fera.

VALERIANO BOIZANI, a Pen, in Biographies, was born at Belluno, in 1477, in such a low condition, that he had no opportunity of acquiring the fift elements of literature till he attained the age of fifteen years. After having been reduced to the neceflity of entering into the service of a noble person at Venice for support, he devoted himself to study under eminent teachers; and agreeably to the practice of the age in which he lived, changed his baptismal name of Gianpietro for Piero. In his 23d year he engaged in the study of philosophy at Padua, and palled three years in a retreat at mount Olivet, in the Veronese. Upon his return to his native place, he found it possessed by the imperial army.
army in 1599, so that he was obliged to make his escape to Rome. Here he fortunately became known to cardinal Giovanni de Medici, by whom, when pope Leo X., he was honourably provided for in his court. At the termination of this pontificate, he paifed some time at Naples; but upon the accession of Clement VII. he returned to Rome, and was promoted to the chair of eloquence, with the title of prothonotary and private chamberlain, to which was added a canonicity, and some other benefice in Belluno. Having employed himself in Latin poetry, he relinquished the composition of elegies and amatory pieces, by which he had acquired reputation, upon taking holy orders. To him Leo X. committed the instruction of his two nephews, Ippolito and Alessandro de Medici, and he accompanied them to Florence, where he resided in the year 1527, when they were expelled from that city. After sharing their misfortunes, he attended them to Florence in 1530. Upon their death, he withdrew from Belluno, and then to Padua, where he elapsed his life in 1558, at the age of eighty-one years.

The work by which he is principally known, is his treatise "De Inflencitate Literarum," first printed in Venice in 1620, and often reprinted. Another of his publications was intitled "Hieroglyphica, sive de facris Ægyptiorum aliarumque Gentium litteris Commentariorum, Lib. LVIII.;" Basel, 1566. Some of his other performances were, "De Sul- minum Significationibus," Rome, 1517; "Pro Sacrodo- tun Barbus defenso," 1531; "Cagnifikations Virgiliane lectionis," first printed in R. Stephens's edition of Virgil, Paris, 1532, and since annexed to various other editions; and "Antiquitates Bellunenses." He also published two volumes of his Latin poems. Moreri. Tirabofchi. Gen. Biog.

VALERIUS FLACCUS. See Flaccus.

Valerius Maximus, a writer whose history is little known. The work which has been ascribed to him, and entitled "De Dictis et Factis Memorabilibus Antiquorum, Lib. IX.;" appears to have been written in the reign of Tiberius, probably after the death of Sejanus, and dedicated with high eulogy to Tiberius. It is cited by Pliny the elder, Plutarch, and A. Cellius; and it was much read and quoted at the revival of literature in Europe. One of the early editions, which were numerous, is supposed to have been prior to 1460; of the later editions, the most esteemed are the "Variate," Lugd.-Bat. 1670; the "Delphin," Paris, 1679; "Torreini," Lugd.-Bat. 1726; and "Kappii," Lipt. 1752.

Valerius Poplicola, Publius, an eminent Roman, and one of the founders of the republican government, distin- guished by his simplicity, eloquence, and liberality. In a contention about the confiscate, at the expulsion of the Tar- quinian family, he was elected to supply the place of Colla- tinus, who was removed from office, and lived on terms of the utmost harmony with his colleague, the celebrated Junius Brutus. In the subsequent battle with the allies of Tar- quin, in which Brutus was slain, Valerius gained a victory, for which he obtained a triumph, B.C. 507. Destroying the election of a new confid, and having built a house on the Palatine hill, that overlooked the forum, he excited the suspicion of the people; but as soon as he understood the ground of their jealousy, he ordered the house to be levelled in the night, and gave orders for supplying the vacancy in the confis- cutate. The father of Lucretia was chosen, but by his death soon after his election, Valerius was again the sole chief magistrade. In the exercise of his office he enacted several laws, abridging the confis cutary authority, and meliorating the condition of the people; and hence obtained the name of Poplicola, or the people's friend. As a proof of his inte- grity and disinterestedness, he removed the public treasury from his own house to the temple of Saturn, thus committing it to the charge of two senators appointed by the people. Upon an election of confis, his popularity occasioned his being chosen a second time. When, in the following year, Pofrena, king of Clusium, in Tuscany, attempted the re- formation of Tarquin, and by an arm which he marched to Rome reduced the city to great difficulties, Poplicola agreed to resign some of their conquests as the price of peace; and his own daughter Valeria was one of the hof- tages. In a war with the Sabines, Poplicola was nominated for the fourth time a confis; and by his military skill ob- tained a complete victory over the enemy, and recovered the town of Fidenza. For this success he obtained a triumph, and soon after died, having established the character of one of the greatest men and most virtuous citizens of Rome. Although he had occupied many lucrative posts, he did not amass money sufficient to defray the expense of his funeral, which was paid by the public; and in honour of his memory, as in the case of Brutus, the matrons of Rome wore mourn- ing for a year. His principles were transmitted to his fam- ily from one generation to another, so that the Valerii were afores of the rights of the people. Livy. Dionyfus Hal. Anc. Up. Hift. Gen. Biog.

Valerius, Lucas, an eminent mathematician, acquired great celebrity at Rome as professor of geometry, and was honoured by Galileo with the appellation of the Archimedes of his time. He died in this city in 1618. He prosecuted the discovery of the centres of gravity of solids, and shewed how to determine them in all the conoids and spheroids, and their respective segments formed by planes parallel to the bases. The result of his investigation was published in 1604, in a work entitled "De Centro Gravitatis Solidorum." He also propounded a quadrature of the parabola different from that of Archimedes. His method was published in 1666, and an- nexed to the fore-mentioned treatise. Montucla.

VALENS REALES, or Royal Bonds, in Commodies, are a kind of paper currency, which was first issued by the Spanish government in the year 1800, for the following sums:

- 600 dollars = 9035 reals 10 maravedis vellon.
- 300 ditto = 4517 ditto 22 ditto.
- 150 ditto = 2258 ditto 28 ditto.

These bonds are transferrable only by indorsement; they bear an interest of 4 per cent. per annum, and were made a legal tender for their full amount, with any interetl that might be due upon them; but, from various causes, they have experienced a considerable depreciation. Kelly's Un. Cambif.

VALESIANS, VALESIANIS, in Ecclesiastical History, in- cident sectories, so called from one Valerius, a person un- known to Epiphanius, who, however, makes mention of this sect, Hr. 58, though he owns he knew but very little of them; only this, that they admitted none into their society but eunuchs; at last, if any were admitted before castration, they obliged them not to eat any meat till the operation was performed. For then, being no longer subject to the motions of the flesh, they allowed them to eat any kind of meats. Whilton says of them, that they sprang up about the year 240, and that they rejected the law and the prophets.

VALESIUS, in Biography. See Valois.

VALESTR, or VALEST, a French term, anciently written warkt.
VAL

In France, valet is a common name for all domestic servants employed in the lower and more servile offices; including what we call grooms, footmen, coachmen, bailiffs, &c. But the word is not used among us in this sense, nor any other than in the phrase valet de chambre; which is a servant, whose office is to dress and undress his master, to look to his bed-chamber, wait on him at table, &c. the name with what we otherwise call his gentleman.

In the History of Lewis XII. by Seifel, we always find valet de chambre du roi, valet de la gard-robe, &c. But valet, like knave, and divers other words, is now degenerated into a term of reproach.

Vallet, valeti, valetel, valet, and valet, Camden observes, were accidentally used at our court for a gentleman of the privy-chamber.

Selden, in his Titles, relates, that valets anciently signified young gentlemen, and heirs of great estate and quality; especially such as were to be knighted.

In the accounts of the Inner Temple, valet is used for a bencher's clerk, or servant. The butlers of the house still call them valets.

Vallet, in the Menga, a flick armed at one end with a blunted point of iron, to prick and aid a leaping horse.

Formerly, a valet was called aiguillon, i.e. goad, and some of them had four-rows upon them, only the points beaten down; and when a horse was first begun round a pillar, without a rider, they were to prick his flanks with the valet, to make him know the furr, and obey it, without refilling. At present the valet is not used for that purpose, and the name of goad is suppressed, as being only proper for oxen.

VALETTA, or CITTA NUOVA, in Geography, a city of Malta, and capital of the island, which, in the year 1565, was built by the grand-master Frederic John de Valetta, on a hill, in form like a neck of land extending itself into the sea, and was called by his name. Its walls are of large square stones, dug out of the rock, and planted with several batteries. On the point towards the sea flanks the castle of St. Elmo, a fortres which defends both the harbours; one of which, called Marfa Mafciotto, lies at the entrance from the sea to the right of the town, and incloses a small island, on which stands both a fort and a lighthouse. The other harbour, on the left side, is simply called Marfa, or the Great Harbour, being the largest, safest, and most commodious in this island, and having some bays. Its entrance, besides the castle of St. Elmo, is guarded by Fort Ricasoli, which flanks on the Punta del Orso, to the left. The town of Valetta lies on its right, and on its left the towns Il Borgo, or Vittoria, and Senglea. In Valetta is a handsome palace, where the grand-master resides, and before it a spacious area for exercises. Each of the seven nations, or tongues of this order, has its peculiar hall. The principal church is dedicated to St. John the Baptist. The Jesuits had a college here; besides which are several convents and nunneries, a large hospital, and a building where Turkish slaves are kept. The number of the inhabitants is computed to be about 2000. See MALTA.

VALETTE, LA, a town of France, in the department of the Iere; 15 miles S.S.E. of Grember—Allo, a town of France, in the department of the Charente; 12 miles N. of Angoulême.—Allo, a fort of France, in the department of the Var, near Toulon.

VALETUDINARIES, VALETUDINARIES, a term sometimes used, by the writers on medicine, for a person of a weak, sickly constitution, who is very frequently out of order, &c.

Dr. Cheyne, by all means, directs the weakly, the fluxious, the febrile, and the valetudinary, to a low, spare regimen.

VALEUR des Notes, Fr.; Value of Notes, in Musick. Beside the position of the notes on the staff, which fix the tone with respect to gravity and acuteness, they have all some peculiarity of figure, which marks their duration as to time, or comparative value as to length. In the ancient primitive time-table, in which all the notes are black or full, except the femibreve and minims, which are white and open, the shortest notes then in use are the longest now, and all that are open. The breve, indeed, equal to two femibreves, is still to be found in church-music of some antiquity, known by the titles alla breve, or a capella; but in all modern music, the femibreve is placed at the head of the other characters for time; and that note, divided into its aliquot parts, furnishes all the fractions in the most rapid compositions.

The dual measure, or common time, is governed by even numbers; as 2 minims, 4 crochets, 8 quavers, 16 semiquavers, 32 demisemiquavers, all which only amount to a femibreve.

Triple time, or ternary measure, is governed by the number 3; as 3 minims, 6 crochets, 12 quavers. In these numbers, the upper figure tells us how many notes there are in each bar, and the under, of what kind in the time-table; as 3 implies 3 minims, 6 three crochets, 12 three quavers.

One-third is added to the value of a note by a point or dot: as a femibreve equal to two minims, by a point is equal to three; a minim equal to two crochets, the point makes equal to three, &c. See Musick CHARACTERS, TIME, and Plate Time-table.

It was to John de Muris, who flourished about the year 1550, that the characters for time in music were long ascribed; but on examining and collating MSS. in the several great libraries of Europe, it has been clearly proved that it was not John de Muris who invented these characters, as he himself owns in one of his tracts, but Magister Franco of Coign, author of a treatise “De Musica Mensurabilis,” written in the eleventh century, long before De Muris was born; in which form the names of the notes is given, and their relative value explained.

This very scarce treatise is preserved in the Bodleian library, 842, f. 49. See FRANCO and De MURIS.

VALEY ISLAND, in Geography, a small island in the North Sea, separated by a strait called Valet Sound, from the fourth-wealth coast of the island of Shetland. N. lat. 60° 15'. W. long. 1° 58'.

VALFROIQUES, a town of France, in the department of the Vosges; 6 miles S. of Mirecourt.

VALGI. When the legs were deformed to such a manner that the feet were twisted outwards, the persons thus disfigured were termed VALGI; while others, who were deformed by an inclination of their toes inwards, received the appellation of VARI.

VALGOM, in Geography, a town of the island of Ceylon; 6 miles N. of Candy.

VALGORGE, a town of France, in the department of the Ardèche; 9 miles N.W. of Largentière.

VALGRANA, a town of France, in the department of the Stresa; 9 miles W. of Com.

VALHERMONA, a town of Portugal, in the province of Estremadura; 9 miles N.E. of Lesta.—Allo, a town on the north-west of the island of Goa.—Allo, a town on Spatia, in New Calde; 12 miles E.S.E. of Guadaljara.

VALI, in the mythological romances of the Hindoos, is a name given to a monkey, forgotten by their god Indra,
on a damsel of the semi-celestial tribe, called Upfarra. We may just notice, that this warlike monkey was killed by the great Rama, the hero of the extraordinary poem Ramayana.

VALIAM, in Geography, a small Ruffian island, in lake Ladoga; 92 miles N. of Peterburg.

VALIANO, a town of Etruria; 10 miles S.S.W. of Cortona.

VALID, a term applied to acts, transactions, expeditions, &c. which are clothed in all the formalities requisite to their being put into execution, and to their being admitted to a court of justice.

A contract by a minor is not valid, or is invalid: a marriage is not valid, unless performed with the solemnities enjoined.

VALIERO, Aostino, in Biography, a celebrated prelate of the church of Rome and a voluminous writer, was born of a noble family at Venice in 1531. Having studied both at Venice and Padua, with a view to the ecclesiastical profession, he graduated both in theology and canon law. In 1558, having previously been employed in several public offices, he became professed of moral philosophy at Venice, which post he occupied till the year 1565, when he was elected successor to his uncle as bishop of Verona, and he prefided over that city for forty-one years. In 1583 he was created a cardinal by Gregory XIII. Through the whole of his life, which terminated at Rome in 1606, in the 75th year of his age, he distinguished himself as the patron and promoter of literature, as well as by his zeal, charity, and munificence. The catalogue of his writings includes one hundred and twenty-eight. Of those that were printed, many being in MS., the most important are, "De Acylorum Disciplina," "De Rhetorica Ecclesiastica," "Epitoma Episcopi formà," "Cardinalis, sive de Optima Cardinale formà," "De recta philosophandi ratione," "De Cautione adhibenda in eandem libris," That his sentiments were liberal for the time in which he lived, appears from his treatise designed to prove that comets are not preages of calamities, and from another against the barbarism of the scholastics. He also wrote on the order and connection of the sciences and arts, and a large work on the Venetian history. Moreri. Tiraboschi.

VALIGA, a name given by some medical writers to an infusion or tincture of jalap in spirit of wine, or spirit of citron, with the addition of a little saffron.

VALIMONT, in Geography, a town of France, in the department of the Mofelle; 8 miles N.W. of Morhange.

VALINCOURT, John-Baptist du Trousset de, in Biography, was born of a noble family at St. Quintin, in Picardy, in 1653, educated at the Jesuits' college in Paris, and distinguished himself as a man of letters. In 1685 he was appointed, by the count of Touloue, admiral of France, his secretary-general, and afterwards secretary of the marine; but through life he cultivated polite literature, and became a member of the French Academy in the room of Racine, an honorary member of that of Sciences, and an advocate of the Academia della Crusca. He succeeded Racine as joint-historiographer with Boileau; but his labours on the reign of Louis XIV. were confounded with his library in 1725, a loss which he bore with philosophical composure, observing to one of his confiding friends, "I should little have profited by my books, if I had not learned how to lose them." He was an active promoter of literature and a protector of learned men, who had always free access to his house; and his character was distinguished by probity, sincerity, and good sense. He was inuch occupied, that his writings are few; they conflit of a critique on the celebrated novel of "The Princes of Cleves," "A Life of Francis Duke of Guise, furnamed Le Balafre," "Critical Observations on the Edipus of Sophocles," and a few poems. Such was his regard for religion, that towards the close of life, he held several conferences with ecclesiastics, for the purpose of terminating the divisions of the church with respect to the bull Unigenitus. He died at Paris, generally esteemed, in 1730, aged seventy-five years. Moreri.

VALINSAY, in Geography, a town on the W. coast of Luson. N. lat. 16° 18'. E. long. 120° 8'.

VALIODO, a town of Hindoostan; 15 miles E.N.E. of Travancore.

VALJova, a town of European Turkey, in the province of Servia; 50 miles N. of Jenibafar.

VALQUIVERVILLE, a town of France, in the department of the Lower Scine; 6 miles N.N.W. of Caudebec.

VALIZE. See BALIZE.

VALK, a town of Ruffia, in the government of Riga; 72 miles N.E. of Riga. N. lat. 57° 50'. E. long. 25° 44'.

Valki, a town of Ruffia, in the government of Charkov; 16 miles S.W. of Charkov. N. lat. 49° 36'. E. long. 35° 44'.

VALKENBURG. See FAuqueMONT.

VALKOVAR, or BarKovar, or Valko, a town of Scelonia, near the right bank of the Drave; 15 miles S.E. of Efeck.

VALL, or Vale, in Commerce, a weight for gold and silver at Bombay and Surat. See TOla.

VALL, in Geography, a town of Sweden, in Warmeland; 28 miles E.S.E. of Carlladt.

VALLA, Giorgio, in Biography, a native of Placentia, and professor of polite literature in the university of Pavia in 1471 and 1476, from which he removed to the chair of eloquence at Venice in 1486. As he was one morning preparing to go to his school, where he explained Cicero's Tusculan Questions, and held daily disputations on the immortality of the soul, he died suddenly at the close of the 15th century. He was the author of many works, which are for the most part collections and transcripts from ancient writers, and translations from Greek authors, useful in that age, but not distinguished by judgment or accuracy. Bayle.

Valla, Lorenzo, was probably a relation of the preceding Valla, and born at Rome, as it has been said, in the year 1415; but as Tiraboschi says, before the year 1406. He was educated in his native city, and continued there till his twenty-fourth year. Having visited Placentia to take possession of the inheritance bequeathed to him by his relations, he settled at Pavia as professor of eloquence in the university. Here he was chargeable with some impieties of misconduct, so that he changed his abode several times, till he became attached to Alphonso, king of Naples, in which city he resided for some time; but in 1453, on the return of pope Eugenius to Rome, he settled in that city. Investigating the pretended donation of Constantin to the holy See, which he discredited, and reflecting on the characters of several popes, he incurred the displeasure of Eugenius, and found it necessary to withdraw first to Offlia, then to Naples, and finally to Barcelona. From hence he addressed an apology to the pope, and a defence of his writings on moral philosophy and dialectics, without any reference to Constantin's donation. He afterwards returned to Naples under the protection of Alphonso, and there opened a school of eloquence, to which many scholars referred; but notwithstanding his popularity as a teacher, he was accused and brought into danger on account of the freedom with which
which he maintained his peculiar opinions. Of these, we may mention his rejection of the letter of Christ to Abgarus as a fiction, and his repudiation of a celebrated preacher for affronting that each article in the apostles' creed was com-
posed by one of them separately. For the latter of these offences he was brought before the Inquisition, and owed his escape to the intercession of Alphonso, after a private flagellation in the cloister of monks. At length he was in-
vited to Rome by pope Nicholas V., who was distinguished by his patronage of literature; and in this metropolis he opened a school of eloquence, A.D. 1450. Here he entered into a dispute with George of Trebifond, secretary to the pope, on the respective merits of Cicero and Quintilian, to the latter of whom he gave a decided preference. His next conflict was with Poggio Bracciolini, who attacked him in five inquitives, to which Valla opposed as many antidotes, or dialogues, against Poggio. The manner in which this literary conflict was prosecuted was disgraceful to both par-
ties, and has been severely cenured by Tiraboschi. Although Valla was much occupied with disputes of this kind, he pursued his studies, and by order of Nicholas V. under-
took a version of the Greek of Thucydides into Latin, for which he received from the pope a recompense of 500 gold crowns, a canonry of St. John Lateran, and the place of apostolic scribe. For these favours on the part of the pope, Valla is charged with ingratitude. In the latter years of his life he visited King Alphonso at Naples, who exhorted him to translate Herodotus, but his death prevented his finishing the proposed version; however, for the part which he completed he was liberally rewarded. This translation was concluded by another person, and dedicated to Pius II. Valla's death oc-
curred in Auguli, 1457. The character of Valla is thus sketched by one of his biographers. He was "a man con-
sidered of his talents and acquirements, intolerant of other men's opinions, and free in his own, arrogant and contentious. His conduct was probably far from correct, though his enemies may have brought false or exaggerated charges against him. His philosophy was professedly Epicurean, placing the highest good in pleasure, which, however, he might explain in the least obnoxious sense. He was never married, but he confided in one of his answerers to Poggio, that he took a young woman to live with him, by whom he had three children, and whose fidelity to himself he extols, adding, that he hoped to procure for her a husband; but concubinage was at that time very common among the felicitors attached to the court of Rome in the capacity of a secret writer. He has al-
ways held a high rank, which he merited by unwarried application, and an enlarged course of study, comprehending history, criticism, dialectics, moral philosophy, and theology. That in the latter his notions were liberal, may be conjectured from some of the circumstances above related, and also from his notes on the New Testament, in which he was one of the first to consider the sense as a critic rather than as a divine, whence he was led to make many correc-
tions in the received translations. He is however said to have been but moderately versed in the Greek language, and Huet speaks very disparagingly of his versions of Thu-
cydides, Herodotus, and Homer's Iliad. Of his numerous writings, his "Elegante Latiniti Sermonis," containing the grammar of that tongue, and rules for composing in it, has been the most generally esteemed, and still retains its reputa-
tion: his own style, however, was defective. Point of
VALLABREGUES, in Geography, a town of France, Vol. XXXVI.
VALLADOLID, in the department of the Mouths of the Rhone; 3 miles N. of Tarazona.
VALLADOLID, a town of Spain, in the province of Leon, on a small river called Efequa, near the Pisuerga; the fee of a bishop, and an university, founded in the year 1346. Several of the churches of Valladolid, those espe-
cially of the Dominicans and of San Benito, are elegant, agreeably to the Spanish taste, that is handloose, and full of altars richly gilt. Valladolid is not wholly without ma-
ufactures; some stuffs and coarse cloths are made there
from the wool of the sheep which are kept in the neighbour-
hood. There are also gold and silver-smiths; and one street is entirely inhabited by jewellers: this is very lively, and full of bustle, as are all the others, which terminate in the great square. An academy of the belles lettres was esta-
blished here in the year 1752. Here was a palace, in which Philip II. was born, now reduced to bare walls; 84 miles N.N.W. of Madrid. N. lat. 41° 42'. W. long. 4° 47'.
VALLADOLID, a town of South America, in the audience of Quito; 40 miles S. of Loxa.—Alfo, a town of Mexico, in Yucatan. N. lat. 19° 50'. W. long. 80° 30'.
VALLADOLID, or Comayagua, a town of Mexico, in the province of Honduras; the fee of a bishop, who takes the title of bishop of Honduras. N. lat. 14° 30'. W. long.
88° 16'.
VALLADOLID. See Medoacan.
VALLAGAM, a town of Hindoostan, in Golconda; 21 miles S. of Combarat.
VALLAIS. See VALLAIS.
VALLANCE, a town of France, in the department of the Gers; 4 miles S. of Condorn.
VALLAR, VALLARIS, formed from vallum, a flake
with branches, of which they made the palisade of a camp, called loric, in Antiquity, an epithet given to a kind of crown, which the Roman generals bestowed on him who, in attacking the enemy's camp, first broke in upon the line of palisades.
The corona vallaris was the same with what was otherwise called corona castrensis, from castra, a camp. Aulus Gallius affures us, that it was of gold, as the mural and naval orders also were: yet, though they were made of that precious metal, they were not the most valued; for Pliny, lib. xxii. cap. 3. gives the preference to the corona ob-
fusionalis, which was yet only of gramin. or grafs. See Crowns.
VALLARIOS, in Geography, a town of Spain, in Ara-
gon; 15 miles W. of Balbastro.
Eff. Ch. Corolla falver-shaped; mouth and tube per-
vious, without scales; limb in five obtuse segments. Sta-
mens prominent; filaments inserted into the throat, very short, with a felifer tube externally, at the top; anthers arrow-shaped, adhering to the stigma. Germin of two cells; style thread-shaped; stigma connate-ovate. Scales at the base of the germ are combined below, fringed at the points. /Follicles . . . .
Obf. Mr. Brown remarks, that this, the Plu Pergu-
lanus of Rumphius, was considered by Linnaeus as the first
species of his genus Pergularia." It does not, however, be-
ton to the same order with the plant that afforded his ge-

C
neric character, and so which the name has been since generally applied. See Pergularia.

1. V. Pergularia. Sweet Bower-vine. Burm. Ind. 51. (Flores pergularus; Rumph. Amboin. v. 6. book 7. 51. t. 29. f. 2.) Carack nullius of the Malayas. Pergularia glabra; Linn. Mant. 55. Wildl. Sp. Pl. v. 1. 134.)—This, the only known species, is a native of Java and Ambonaya, used for bowers and trellis-work, as it makes a very thick shade. The Malay women are fond of adorning their hair with its fragrant flowers. The flem is perennial, shrubby and twining. Leaves opposite, flalked, ovate, acute, entire, thick and shining, five inches long, two and a half or three wide, with strong pale veins. When the leaves or twigs are wounded, they discharge a thick, viscid, yellow milk. Flower-fasts from between the footstalks, fokced, cornybofe. Flowers white, and highly fragrant, compared by Rumphius to thofe of Jofmine, (probably Jasminum Samars.) but having a shorter tube, with five fanging bodies in the middle. He speaks of the fcent of these flowers as too strong for Europeans, though highly esteemed by the natives of the country where they grow.

Valle, Pietro Della, in Biography, a Roman pat- rician, who, in the year 1614, commenced his travels into Egypt, Turkey, Peru, and India. At Bagdat he felled in love with a young female of the name of Chriftiana Febis of Chriftiana Febis; and married her. She accompanied him in his journey, and on his return towards Italy, she died near the Perian gulf. The los of fo much affected him, that he had her remains em- balmed, and carried them with him during his fubfquent travels, and on his return to Rome, they were magnificently interred in the church of Ara Coeli; and he himself pron- nounced her funeral elogy, which was printed. The ac- count of his travels, written by himself in Italian, and con- tained in fifty-four letters, was published at Rome in 1650. They have been often cited as authority, though not defi- nite of marks of credulity, and still bear a repectable rank among books of travels. The iftyle is pure and elegant, though the narration is prolix. Doni has spoken of him in terms of high commendation, and represents him as well ac- quainted with the Oriental languages, and with music. He wrote on other fubjeds besides his travels, and was a member of the Academy degli Umorifti. His fcond wife was a Georgian, attached to his fift wife, and the companion of his travels. Moreri.

For the opinion of this agreeable writer concerning the music of his own times, we refer to the article Orifting, inferting here his account of the manner in which the first opera, or musical drama, was exhibited at Rome, which is ex- tremely amusing and curious. "Though no more than five voices, or five instruments, were employed, the exact num- ber which an ambulant cart could contain, yet Steele afforded great variety: as, besides the dialogue of fingle voices, sometimes two, or three, and, at last, all the five fongs to- gether, which had an admirable effect. The music of this piece, as may be seen in the copies of it that were afterwards printed, though dramatic, was not all in fimple recitative, which would have been tiresome, but ornamented with beau- tiful pavages, and movements in measure, without deviating however from the true theatrical iftyle; on which account it pleased extremely, as was manifefted from the prodigious con- course of people it drew after it, who, so far from being tired, heard it performed five or fix feveral times; there were fome even who continued to follow our cart to ten or twelve different places where it flp, and who never quitted us as long as we remained in the ftrée, which was from four o'clock in the evening till after midnight."

This narration seems to furfh a curious circumstance to the history of the stage, which is, that the first opera, or musical drama, performed in modern Rome, like the firft tragedy in ancient Greece, was exhibited in a cart. It has been imagined by many of the learned, that the recitative in modern opera is a revival of that species of melos in which ancient dramas were sung; and here the moveable stage on which it was performed, like that used by Théfipis at Athens, furnishes another resemblance.

"—— Plautus vestale,
Poemata Théfipis." Hor.

Della Valle, after having proved that the singing of his time was better, and the compositions more varied, more rational, and imical to poetry, than the more ancient, pro- ceeds to speak of instrumental music; and after discriminating the different kinds of playing on an instrument, in a folo, in a full piece, in accompanying a voice, or leading a band; he fays, he muft agree with his friend, that folo playing, however exquisif and refined, at length tires; and that it had frequently happened to organists of the highest chufs, when loft and immerfed in carrying on a happy sub- ject of voluntary, to be flienced by a bell; which never happened to fingers, who, when they leave off, difpleafe the congregation or audience, to whom their performance seems altogether too long.

After difcufling instrumental music, he comes to finging, and this he considets in folo fongs, and in fume of many parts. His friend, among the sopranis, or treble voices, of his youth, had greatly praised the falaffi who used to fing in the pope's chapel, and elsewhere; and Della Valle fays he remembered one of them, Gio. Luca Falaffi, who had great execution, and went up to the clouds; and mentions Orazietto, a very good finger, either in a falfi or tenor; Ottaviveccio and Verovio, famous tenors, who all three fung in his cart. "However, thefe," he adds, "trills, graces, and a good portamento, or direction of voice, excepted, were extremely deficient in the other requifes of good finging; such as piano and forte, swelling and diminifhing the voice by minute degrees, expression, affifling the poet in fortifying the femfe and paffion of the words, rendering the tone of voice cheerful, pathetic, tender, bold, or gentle at ple- nure: thefe, with other embellifhments in which fingers of the prefent times excel, were never talked of even at Rome, till Emilio del Cavaliere, in his old age, gave a good speci- men of them from the Florentine fchool, in his oratorio, at the Chiefa Nuova, at which I was myfelf, when very young, prefent."

What follows is extremely curious and fatiafaftory con- cerning a delicate point of musical history, which is, the first eftablifhment of evirati in the pope's chapel, and the ufe of them in early operas.

It is astonishing how much sooner Della Valle got rid of the pedantry of the then old fchool, than any of his contemporaries. He manifefts as much good taste in his reflctions on imitative and dramatic music, as any writer of the laft century.

Della Valle's biographers seem to have known nothing of the correpondence with Guidiccioni, or of his skill and good taste in music. This agreeable and intelligent traveller died in 1652, aged 66.

Valle, in Geography, a town of Norway, in the province of Christianland; 16 miles S.W. of Christianland.

—Allo, a town of Norway, in the province of Christian- land; 44 miles N. of Christianland. —Allo, a town of Iffria, and chief place of a diatribe; 8 miles N. of Pola. N. lat. 45° 9'. E. long. 13° 57'. — Allo, a town of Italy, in the department of the Adda and Oglio; 8 miles N.N.E. of
of Breno.—Alfo, a town of Italy, in the department of the Gogna; 5 miles W. of Lumello. N. lat. 45° 8'. E. long. 8° 40'.

Valle Calamocibra, a town of South America, in the province of Tucuman; 40 miles N.E. of St. Louis.

Valle Ruffio, a town of the island of Corfica, in the district of La Porta.

Valle di Spagna, a town on the east coast of the island of Cephalonia.

VALLEA, in Botany, owes its name to Mutis, who sent the plant to Linnæus. In the Supplemimentum it is said to commemorate a person named Valle, "praised by Allioni." No one having vouchsafed to indicate where this praise is bestowed, and De Theis having transferred the honour of the present genus, with true French patriotism, to one of his own countrymen, Robert Valle, of Rouen, who published, in 1500, some Commentaries upon Pliny, we have thought it necessary to inquire into the matter; especially as the genus is well worth claiming. In a note to Allioni's Rariorum Pedemontii Stirpium, Specimina primorum, page 23, the mystery is unravelled, by a narrative, of which the following is the substance. Dr. Valle, a physician of Turin, a botanist of no common merit, after having attentively investigated the plants around that city, and those of the neighboring alps, was led by an ardent love of botany, and other branches of natural history, to procure, in 1747, the appointment of physician to the army in Corfica, in order to examine the productions of that country. There he made ample collections of plants, seeds, shells, insects, and other things worthy of notice. But being more anxious to acquire knowledge than to take care of himself, the heat of the climate threw him into a violent fever, which carried him off in three days. His dried Corfican plants, falling into the barbarous hands of ignorant people, were all destroyed. Whatever his friend Allioni could meet with, by the affilience of the family, he purchased; and thus became possessor of numerous specimens, gathered by Dr. Valle about Savona, as well as in various parts of the alps, of which he had drawn up a description, after Tournefort's system; but this was completed no further than the first four chapters.—The name of Valle therefore deserves to be embalmed with thofe of Bartch, Borone, Lippi, and other premature martyrs to botany, who have justly been thought worthy of such an unfaidng memorial.—Linn. Suppl. 43, 472. Schreb. Gen. 452. Willd. Sp. Pl. v. 2. 1212. Juss. 434. Poiret in Lam. Dict. v. 8. 318.—Clafs and order, Polyandria Monogynia. Nat. Ord. Tiliaee, Juss.?

Gen. Ch. Cal. Perianth inferior, of one leaf, in four or five deep, ovate, folutated, coloured, dissected segments. Cor. Petals four or five, obovate, three-cleft, rather larger than the calyx. Nectary a flattish, undulated, shining, coloured border, under the germen. Stem. Filaments numerous, 30—40, awl-shaped, flattish, coloured, incurved, shorter than the calyx, inferted into the receptacle, beneath the nectary; anthers linear, erect, with two pores at the summit. Pet. Germen superior, ovate; style nearly cylindricaJ, as long as the calyx; stigma four or five slender divisions. Peric. Capsule with four or five angles and as many valves, each valve appropriated to two cells. Seeds several.

Eff. Ch. Calyx in four or five deep segments, inferior. Petals four or five, three-cleft. Stigmas four or five. Capsule with four or five valves, twice as many cells, and several seeds.

1. V. dipetala. Linn. Suppl. 266. Willd. n. 1.—Native of the colder parts of New Granada. A tree, twelve feet high, with round, fritated, leafy, hairy branches. Leaves alternately, on hairy filaments an inch long, spreading, simple, heart-shaped, acute, entire, two or three inches long and half as broad, fiddle-ribbed, beautifully reticulated with innumerable veins; smooth and shining above; paler, clothed with tawny hairs, especially about the rib and larger veins, beneath. Stipites rather large, leafy, kidney-shaped, entire, stalked, in pairs at the base of each footstalk, and clasping the stem above it. Flowers blood-red, near an inch in diameter, in forked, cymose, hairy, axillary, and terminal panicles, shorter than the leaves.—Linnæus cites Mutis, Amer. v. 7. t. 10, by which botanists have been led to understand, that Mutis had published an important work on American plants, extending to seven volumes, at least. But in fact no such work exists. The reference is, in every point, erroneous, and alludes merely to a collection of thirty-two Indian-ink drawings of Mexican plants, sent by that learned Spaniard, with numerous dried specimens, to Linnæus. (See Mutis.) From his drawing of the Vallea, compared with the specimen, we have, as our readers may observe, ventured to correct some part of the generic characters. By that drawing the feet-well appears to have four valves, (sometines, it seems, varying to five,) each of which has flexed edges, besides a central partition; and these, all meeting at a central column, may easily be conceived to form a capsule of eight or ten cells, explaining the strange expression in the Supplemimentum, of "clipsibus bicliniataribus." Several circumstances indicate the affinity we have hinted above, of this genus, to Jussieu's Tiliaeae; see that article.

VALLEFREDA, in Geography, a town of Naples, in Lavora; 8 miles N.W. of Sezza.

VALLELONGA, a town of Italy, in Calabria Ultra; 18 miles E.N.E. of Nicotera.

VALLENCAFAY, a town of France, in the department of the Indre; 21 miles N. of Châteauroux. N. lat. 47° 10'. E. long. 2° 38'.

VALLENGEN, or Vallagen. See Valencon.

VALLERAQUE, a town of France, in the department of the Gard; 6 miles N. of Le Vigan.

VALELS, a town of France, in the department of the Indre and Loire; 12 miles W.S.W. of Tours.

VALLESIA, in Botany, thus named in the Flora Peruvian a, after Dr. Francis Valles, physician to Philip II. of Spain, and author of a work, amongst others, on the plants of the holy scriptures; free from heresy, no doubt, if not from error.—"Fl. Peruv. v. 2. 26. t. 151. f. B."—Poirét in Lamarck Dict. v. 8. 319.—Clafs and order, Pentandria Monogynia. Nat. Ord. Compositae, Linn. Aposince, Juss.

Gen. Ch. Cal. Perianth inferior, small, of one leaf, in five acute segments. Cor. of one petal, funnel-shaped; tube much longer than the calyx, swelling upwards; limb flat, in five ovate, equal, spreading segments. Stam. Filaments five, very short, inferted into the upper part of the tube; anthers arrow-shaped, in the mouth of the corolla. Pet. Germen superior, oval, cloven; style thread-shaped, as long as the tube of the corolla; stigma obtuse. Peric. Drupes two, oval, obtuse, disarticulated, of one cell. Seed. Nut solitaire, oval, woody, fibrinous, fritated, with a solitary kernel.


VALLEY.

lanceolate, acute, entire, smooth, shining, single-ribbed, two or three inches long and one broad. Panicles or cymes small, forked, opposite to the leaves. Flowers small, white. Fruit whitish. *Poires, after the Fl. Peruv.*

VALLET, in Geography, a town of France, in the department of the Lower Loire; 12 miles E. of Nantes.

VALLEY, in Natural History and Geology, is a tract of ground bordered by hills or mountains on two opposite sides, between which it extends in a straight or winding line. If the valley be short, and the length is not much greater than the breadth, it is called an opening, or pafs, through a mountain or chain of mountains.

Large valleys have generally a number of small valleys joining them, like branches to a main trunk. In almost every valley there is either a lake or a river, and the magnitude of the river bears some proportion to the valley. The lower end of a valley, where the river empties itself into a larger river or lake, or into the sea, is generally much broader than its upper or higher end. Some valleys are nearly closed in at each end, forming elliptical hollows in mountainous districts. Such valleys have once been lakes, but the water having worn itself a paffage at the lower end, has reduced the lake to a small stream in the middle, or the lakes have been filled up by the debris from the adjoining mountains.

Sauflure divides valleys into two orders, which he calls longitudinal valleys and transverse valleys. Grand mountain chains are commonly formed of many ranges of mountains running parallel to the highest or central range, each range diminishing in height as its distance from the central range increases. It is between these parallel ranges that longitudinal valleys are situated. Sauflure cites the valley of the Rhone as a striking example of this kind of valley.

Transverse valleys are those openings which communicate between the longitudinal valleys, either at right angles with them, or obliquely. It is observed by Patra, that the transverse valleys which cut through the central range of mountains, are sometimes nearly horizontal, at least for a short distance; but those which cut the collataral chains have always a more or less rapid descent; and as they are frequently excavations formed by water-courses, they sometimes present corresponding saliant and retiring sides, like the valleys in secondary mountains; but it is evident that this effect is accidental.

One of the essential characters of longitudinal valleys is, that their direction is parallel with the line of bearing, or range of the beds of which the mountains are composed. Transverse valleys cut through the beds in the direction of their line of dip or inclination. See Plate II. Geology, fig. 2, in which the side of the mountain fronting a represents the beds of a mountain in their line of bearing; and a spectator placed at the station a, may be supposed to be placed in a longitudinal valley, in which the edges of each bed in the opposite mountain would appear to range horizontally. The same appearance would present itself to the spectator placed at B, fig. 5. A transverse valley cutting through the beds at right angles to the former, would shew the true dip or inclination of each bed to a spectator placed at b, in the former fig. 2. The side E of the mountain represents the direction of a longitudinal valley, the side G, the direction of a transverse valley.

The Alps present many longitudinal valleys. The valleys in the Pyrenees are transverse. This difference has been suppos'd to arise from the central parts of the Pyrenees ascending more precipitously above the lower beds; hence the waters, falling with great impetuosity, have cut paffages through the lower beds in direct lines, and taken the shortest course to the plains below.

In the Alps, the currents, being less violent, have followed the course of the longitudinal valleys, which had been traced out by nature in the original formation of those mountains.

Some mountain groups are disposed in forms nearly circular, so as to include great tracts of flat country, as is the case with Swabia, Hungary, Transylvania, &c. These circular bains or valleys have formed lakes, when the relative level of the ocean was much higher than at present; and on infpecling the belt maps, where the inequalities of the surface are delineated, we may be led to suppose that a considerable part of Europe has once been covered by these lakes, the present mountain chains forming the boundaries. The Rhone and the Rhins, flowing among the mountainous circular valleys in their course; and the river Don, in Aberdeen, has its course through valleys of this kind. At the mouth of the Don, the rocks confine it to a narrow channel, and give to it an aspect which would convey the idea of its flowing through a mountainous and rugged country, where no space was left for forming even a commodious road along its banks; but on ascending it for about one mile, the hills recede on each side so as to form a fpacious vale, through which the river flows in a flow majestical course for many miles. Nor is the prospect here uniform, but agreeably diversified, the hills above Iverury approaching again close to the river, through which it seems to have forced its way with difficulty; then all at once it opens into another fpacious vale, from which the hills recede on either hand to a great distance; then it closes again; and after another temporary confinement among rocks, hills, and woods, its waters once more open into another plain of great extent. Such is the general character of this river.

The Danube, whose history has been so well illustrated by the count de Margili, has four sources, one of which, the river Swabia, from whence it paffes through Swabia, Bavaria, Austria, Hungary, and Walachia, into the Black sea. Swabia is a great circular valley, from which the Danube escapes by a narrow opening into Bavaria: during its progress through Bavaria, it paffes through several circular valleys into Lower Austria, which is also a circular valley. It flows through Austria, and at Pretzburg, where the valley is nearly shut up, it forces its way through rocks and hills into Hungary, which is one of the most extensive circular valleys in Europe. At the lower extremity of Hungary, the river is again forced to seek its way through a narrow rocky channel to Orfova, which is the only opening between Hungary and Walachia. It now continues its course through Walachia, and at length falls into the Black sea. We have a continuation of this chain of valleys, although still filled with water, in the Black sea, the sea of Marmora, and the Mediterranean.

The valley of Cashmera presents one of the most striking examples of a circular bain or valley, containing a small lake, which has probably once filled a confiderable part of the great cavity formed by the surrounding mountains. "This happy valley," says Mr. Pennant, "this Hindoostan paradise of the Indian poets, is of an oval form, about eighty miles long, and forty broad, and is suppos'd to have been once entirely filled with water, which having burst its mound, left the vale nourished to the most dilatant ages by the fertilizing mud of the river, which fed its expanse. This delicious spot is surrounded by mountains of vast height and rude aspect, covered with snow, and eneched in glaciers, in which this enchanting jewel is firmly fet."

The formation of valleys has been by some philosophers acribed
VALLEY.

afcribed almost exclusively to the action of running water. That many of the present valleys have been so formed, is rendered probable by various existing phenomena, but other causes must also have operated. Among these we may enumerate the original inequalities of the surface; these were indeed necessary to make the waters flow in a particular course. The sudden elevation of parts of the earth's surface, and the subsidence of other parts, are also proved by the fractures and dislocations of the strata which mountainousdistricts almost everywhere present. There are likewise evident marks that the ocean has been thrown sud- denly, and with great violence, over our present continents, tearing away and transporting to distant countries various parts of the surface, scooping out hollows in the softer strata, breaking down the boundaries of immense lakes, and thus changing the course of rivers, and opening new valleys where none before existed. Great and sudden risings of the sea have been known to take place in our times, by the agency of submarine fire operating on a small extent of the globe; and we have only to conceive the same agent operating more powerfully, to explain the changes which may have taken place from the ocean suddenly rising and sweeping over a large portion of the globe. See System of Geology.

The theory of the formation of valleys by the action of rivers has been supported by Dr. Hutton and professor Playfair. "Every river (says the latter) appears to consist of a main trunk, fed by a variety of branches, each running in a valley proportioned to its size, and all of them together forming a system of valleys communicating with each other, and having such a nice adjustment of the depressions, that none of them join the principal valley either in too high or too low a level, a circumstance which would be infinitely improbable, if each of these valleys was not the work of the stream that flows through it. When the usual form of a river is considered, the trunk divided into many branches, and these again subdivided into an infinite number of smaller ramifications, it becomes strongly impressed upon the mind, that all these channels have been cut by the waters themselves, and that they have been slowly dug out by the washing and erosion of the land." This is an accurate description of the structure of many valleys, but there are others in which the smaller valleys do not join the larger at the same level, but terminate abruptly, and the rivers which flow through them fall in cascades to the lower valleys. The valley of Wattenlagh, in Cumberland, is a striking instance of this kind. The lower extremity joins the vale of Keswick, in which the lake of that name is situated, but it does not enter it at the same level, but terminates in a precipice between two cliffs, down which the water is thrown, forming the cataract of Lowdreda, which empties itself into the lake.

Where the corresponding strata on each side of a valley have nearly the same elevation as is represented in Plate III. Geology, fig. 4, it is obvious that the excavation between the opposite hills has been formed by water which has once flowed at a much higher level than at present. Also, where the strata on the opposite sides of a valley have the same angle of inclination with the horizon, (see Plate II. Geology, fig. 5) we may infer that it has been excavated by water; but where the strata on the sides of a valley dip in an opposite direction, or have a much greater dip on one side than on the other, the original formation of the valley may be attributed to the elevation or sub- sidence of the strata, forming a fissure through which the water has run, and in which the course of ages has worn a channel and enlarged the passage. Some circular valleys and lakes may have originated in the subsidence of the surface, forming a large cavity, the sides of which are gradually worn down in many parts into gentle slopes. An accurate exam- ination of the true line of dip of the beds, can alone dis- cover to which of these causes the formation of any particular valley can be ascribed; and it is frequently more difficult to ascertain the true angle of inclination than is generally supposed, and still more difficult to determine whether a slight variation in the angle is occasioned by a fracture, or by an original inequality or waving of the stratum.

That lakes are pitting to the state of valleys, and that many of the present valleys have been lakes, is obvious to the most common observer who will attend to the appearances which they present. A lake, says professor Playfair, is but a temporary and accidental condition of a river, which is every day approaching its termination; and the truth of this is attested not only by the lakes that have existed, but by those which continue to exist. Where any considerable stream enters a lake, a flat meadow is usually observed increasing from year to year: the soil of this meadow is deposited in horizontal strata; the meadow is terminated by a marsh, which marsh is acquiring solidity, and is soon to be converted into a meadow, as the meadow will be into an arable field. All this while the sediments of the river makes its way slowly into the lake, forming a mound or bank under the surface of the water, with a pretty rapid slope towards the lake. This mound increases by the addition of new earth, mud, and gravel, poured in over the slope, and thus the progress of filling up gradually advances. By an accumulation of vegetable matter in shallow lakes, marshes and peat bogs have been formed at the bottom of valleys where the waters have not flowed with sufficient rapidity to drain away the moisture. These are common in various parts of the Highlands, and in Ireland. The filling up of lakes, and the enlargement of valleys, by the proclivity above described, may be distinctly seen in the vicinity of the lakes of Cumberland and Westmorland. Larger lakes exemplify the same process. Where the Rhone enters the lake of Geneva, the beach has been observed to receive an annual increase; and the Portus Veltini, now Prevallais, which is at present half a league from the lake, was formerly close upon its bank. Indeed the sediments of the Rhone appear clearly to have formed the valley through which it runs, to the distance of about three leagues from the place where the river now discharges itself into the lake. The ground there is perfectly horizontal, composed of sand and mud, little raised above the level of the river, and full of marshes. The deposition made by the Rhone, after it enters the lake, is visible to the eye, and may be seen falling down in clouds to the bottom.

Where lakes are situated at a considerable elevation above the sea, or the adjacent country, they may be emptied by the wearing down of the strata which forms the outlet. Many of the North American lakes are connected by small strata or rivers, which have a rapid descent. One of them are prodigious water-falls, which are constantly enlarging the passage from one to the other, and will ultimately drain the upper lakes. The falls of Niagara are observed to be progressively shortening their distance from the upper lake, since the banks have been inhabited by Europeans; and when it has completed its progress, the upper lake will become an extensive valley, surrounded by rising grounds, and watered by a river or smaller lake, which will occupy the lowest situation.

Valleys constitute the most fertile and habitable parts of almost
almost every country. Their superior fertility is derived from a constant supply of fresh soil, and from natural irrigation, and a more equal temperature; the vegetation being sheltered and protected from the boisterous winds that sweep over extensive plains, and the more elevated parts of the globe. It has been observed, however, that low valleys are not so favourable to the longevity of the human race as dry and mountainous districts.

Valley of Heroes, in Geography, a name given to the delightful plains of Oujan, which are said to produce the finest pasture in Persia. It is so called by the natives, from having been formerly the favourite hunting park of the kings and heroes of Iran, and particularly of Bahram Gour, who had many palaces of different colours in the neighbourhood. This prince, passionately devoted to the chase, took his name from the gour khur, or wild ass, with which this valley abounds. In one of the roads from Persepolis to Ispahan there is a pass or defile, called Iman Zada Ishmael, two furlongs in length, and commencing at the 36th mile from Persepolis, which leads into the above-mentioned plains.

Vallets, in Building, denote the gutters over the sleepers in the roof of more buildings.

Valli, in Ancient Geography, a people of Aisa, upon the Gordian mountains, near the Caucassian gates, which were in these mountains, according to Pline.

Valli, in Botany, Jiff. Gen. 567. Rheede Hort. Malab. v. 7. t. 6—11, the name of several East Indian climbing shrubs, which Julliff confiders as belonging to the genus Vitis, hereafter to be described in its proper place. Karetà Valli of the same volume, t. 45, is referred by him to the neighbouring genus Cifius.

Valli, in Geography, a town of Naples, in Lavora; 12 miles E.S.E. of Capua.

VALLIERE, a town of France, in the department of the Creuse; 6 miles S.W. of Aubusson.

VALLIES, Four, Distrit of, otherwise called The Distrit of Pignerol, a province of Piedmont, bounded on the north by the marquifate of Susa, on the west by France, on the south by the marquifate of Saluzzo, and on the east by Carmagnola. The four vallies are those of Peroua, Lucerna, St. Martin, and Angroina. The province is about 24 miles long, and from eight to eleven broad. The principal towns are Pinerolo, Lucerna, Peroua, St. Martin, and Feneffrila. These vallies are watered by the Clufon, and several other smaller rivers; they are all surrounded with mountains and sharp rocks, in which are found white hares, foxes, pheasants, partridges, wolves, and bears; and in the most lofty of the neighbouring alps is found the marmotte, a creature something larger than a rabbit, but more of the nature of the badger; the chamois; and the bouquetin, an animal something like a goat or chamois, but more fleet than either. Among the tame animals is the jument, produced by a bull and a mare, or a bull and a sheaf. The vallies are fertile in pattarine, and the mountains in fruit, particularly celnuts. These vallies are celebrated for the cruel persecution of the inhabitants, who were called Waldencif, on account of their religion, about the year 1655. But now they enjoy in peace the worship they embraced, though they have a Catholic church in each parish. The number of inhabitants is reckoned at about 8000, of whom 7000 are supped to be Protifantists.

VALLIS, in Ancient Geography, a town of Africa Propria, upon the route from Carthage to Cirta, between Sicilia and Corena, according to Antonine's Itinerary.

VALLIS Acher, Valley of Acher, a valley of Palestine, north of Jericho.

VALLIS Aijabu, Valley of Aijabu, a valley of Palestine, in the tribe of Dan, between Thammath and Bethhemeth.

VALLIS Artificum, Valley of Graffina, a valley of Palestine, in the tribe of Benjamin, near Jordan.

VALLIS Arunudin, Valley of Reeds, a valley of Palestine, near the Dead fea.

VALLIS Benedictionis, Valley of Bluffing, a valley of Palestine, in the tribe of Judah, west of the Dead fea.

VALLIS Carimiana, a place of Pannonia, on the route from Sopianae to Aquincum, between Pons Socrorum and Corvinum or Gorgium. Anton. Itin.

VALLIS Cadaverum, Valley of Tophet, the slaughter-house of Jerufalem. It lay south of the city, in the valley of the children of Hinnom. It is said, that a fire was constantly kept here for burning the carcases, and other filth, that were brought hither from the city. (Iaïlah, xxx. 33.) Others think, that the name of Tophet is given to the valley of Hinnom, on account of the sacrifices offered there to the god Moloch, by beat of drum, to drown the cries of the consuming children; a drum in Hebrew being called tops.

VALLIS Domittiniana, a place of Lower Moria, upon the route from Atrabium to Nicomedias.

VALLIS Gibonis, Valley of Gibon, a valley of Palestine, west of Jerufalem, fo named from the fountain of Gibon, whose spring is in this place, and runs from west to south.

VALLIS Eumona, a town of Judea, in the tribe of Benjamin.

VALLIS Jeraxel, a valley of Palestine, having the chain of mountain Hammon to the north-east.

VALLIS Illuvris, the Illuvris Valley, a valley of Palestine, near Sichem. This was the vale or plain of Moreh.

VALLIS Montium, the Valley of Mountains, a name given by the prophet Zechariah to the valleys round about Jerufalem, where the inhabitants of that city took shelter, when the city was besieged by the Romans.

VALLIS Rephasim, or Valley of the Giants, called in Greek the Valley of the Titans, and in the Vulgate, the Valley of the Giants (2 Sam. xxii. 13.), lay near Jerufalem, and belonged either to the tribe of Judah, or that of Benjamin.

VALLIS Salinas, the Valley of Salt or Sal-sites, generally placed in the southern part of Idumaa, S. of the Dead fea, but situated according to Calvin, in the easter part of Idumae, between Tadmor and Bozez.

VALLIS Syrophulcia, the Vale of Woods, a valley of Palestine, in which were situated the cities of Sodom and Gomorrah, and where the Israelites, or the Dead fea, was formed. This was called the vale of Sidim.

VALLIS Tabernaculorum, the Valley of Succoth, or Vale of Teuts, lay beyond Jordan, near the city of Succoth. The psalmist puts the valley of Succoth for the whole country beyond Jordan.

VALLIS Terebintus, called the Valley of Elah (1 Sam. xvii. 2) or of the Oak, lay S. of Jerufalem, towards Sochoh and Azekah. The valley of the Terebinthus is also a name given to the valley of Manre, on account of the terebinthus under which Abraham entertained the angels.

VALLISNERI, ANTHONY, in Biography, a celebrated Italian naturalift, was born of a good family, May 3d, 1661, at the calle of Trellicio, of which his father was governor for the duke of Modena. He was first instructed in the rudiments of the learned languages by the Jesuits, at Modena, and was afterwards taught rhetoric, and the Ariflotelian philosophy, under the same aupsites, at Reggio, where he defended his theses on that subject in 1682. Nevertheless he began, even at this period, to be difsatisfied with the prevailing fystem, which he called a philofophy of words; and happening to have a more liberal and enlightened preceptor
preceptor than usual, his attention was directed to natural and experimental philosophy, and the then prevalent hypotheses of Des Cartes. His tutor Biagi, a Jesuit, had the good sense and honesty to avow, that the philosophy of Aristotle might suit theologians and monks, but that he himself knew many able and distinguished men, at Bologna, and elsewhere, who, far from being indebted to that great person, never thought of his doctrines but to refute them. Vallisneri therefore removed to Bologna in 1683, and very soon gave up theories and hypotheses for the observation of nature. Here the great Malpighi, to whose particular favour he was recommended by the princes of the house of Este, directed his anatomical enquiries, and from him he received, at his first introduction, a valuable lesson on the preemption of thec physicians, who boast of a specific for every disease. The learned and experienced Malpighi, confined to his bed by illness, declared that he was unable to cure his own disorder. A candid confession, which then astounded his hearer; but of the truth of which Vallisneri declared himself subsequently more and more convinced by his own practice of physic, when he found the most boasted specifics daily deceiving his expectations.

The father of the young Vallisneri, himself a doctor of laws, offered his son a choice between law and physic; but his earliest inclinations and inquiries were too much allied to the latter profession to allow of hefitation. An anatomist of animals from his youth, he devoted himself to affiduously to dissections, in the instructive and flourishing school of Bologna, that his health became a sacrifice to his curiosity, and Malpighi was obliged to check the dangerous ardour of his promising pupil. Vallisneri would doubtless have graduated in this famous university, then in its meridian glory; but at the time when this should have taken place, the duke of Modena put forth an edict, prohibiting his subjects from taking degrees, except at Modena or Reggio. Vallisneri chose the latter, and took his doctor’s degree in 1684; but in order to study with advantage the necessary sciences of chemistry and botany, as well as to improve himself in practical surgery and physic in the hospitals, he was obliged to return to Bologna; as our doctors of Cambridge or Oxford find it expedient to accomplish themselves in London and Edinburgh. He spent about three years more under the auspices of Malpighi, who at length dismissed this favourite pupil with the sound advice of studying nature, and communicating matters of fact. “Systems,” said he, “are ideal and mutable. Observation and experience are solid and unchangeable.”

The years 1685 and 1686 were usefully passed at Padua, Venice and Parma, and at length Vallisneri settled as a physician at Reggio. Here he planted a botanical garden, and employed his leisure hours in excursions among the neighbouring mountains; to collect herbs, minerals and petrifications; to observe the strata of the rocks, and the origin or nature of the various forests; as well as to take the pleasures of the chase, of which he was very fond. The first particular object of investigation to which this ingenious philosopher devoted his attention, was the anatomy of the Silk-worm, by which he was led to the study of the metamorphoses and generation of other insects. Malpighi and Redi were his guides; but he soon found, in the intricacies to this new and reconduit course of enquiry, that he was able to extend their information, and correct some of their remarks. He gave his discoveries to the world in the form of two Dialogues in Italian, proposed to take place between Pliny and Malpighi, on the arrival of the latter in another world. These brought great reputation to their author, both for the value of their contents, and the elegance of their language and composition. They introduced him to the acquaintance and correspondence of several learned men, engaged in similar studies; among others to that of our distinguished Dr. Martin Lister. He was soon afterwards invited to Padua, where he rose successively from one medical professorship to another, till he obtained, in 1711, the first chair of the Theory of Medicine. When Vallisneri first took his place among the teachers of physic in this long-established university, he was well aware of the caution necessary in opening the eyes of the blind, and in teaching the lame to walk. He had already exercised his own powers, and was a proficient in the practical, or experimental, philosophy, of medicine, as well as of anatomy and physiologv. But those accustomed to lean upon others, do not at once acquire, or even desire, the use of their own faculties. Established bodies naturally cling to established authorities, and it perhaps becomes them to be cautious of embracing, without due deliberation, any unauthorized novelty. To this duty, whatever others they may neglect, they must be allowed to be piously attentive. Nothing therefore could be more judicious than the subject of our new professor’s first thesis, when he took the chair on the 14th of December, 1700; that “the Studies of the Moderns do not overturn, but confirm, the Medical knowledge of the Ancients.” He pointed out in Hippocrates traces of the greatest discoveries, which the moderns by their superior opportunities had fully explained, such as the circulation of the blood; and thus without invalidating the merits of the latter, he dexterously confirmed the authority of the former, and flattered, instead of alarming, their disciples. He thus stimulated them to enlarge the sphere of their own knowledge, so that by improving the practical sciences of chemistry, anatomy, &c. they might farther elucidate what the ancients had not fully understood or explained. In the progress of his lectures, however, Vallisneri was too judicious, and too honest, to sacrifice truth, to any ancient or modern authority. He attacked, without feruple, Avicenna’s theory of fevers, and the erroneous practice founded thereon; as well as the doctrines of the putrefaction of the humours, the sanguification of the liver, with many mechanical hypotheses of the old school. All this did not indeed pass without animadversion, especially the new doctrine of glandular secretion; but Vallisneri, supported by truth and experience, finally prevailed, and wrought a great change in the theoretic medicine of his day. Improvements in practice followed of course; and whenever the enlightened teacher met with any troublesome opposition, or, as usual, was attacked with misrepresentation and clamour, he found an able protege in Frederick Marcello, procurator of St. Mark, who being charmed with his earlie writings, had first recommended him to his appointments at Padua.

The intervals of his acadeimal duties were often devoted by Vallisneri to rural excursions, for the improvement of his knowledge in natural history, as well as for the restitution of his bodily and mental powers, amid the wild and majestic, or the variously beautiful, scenes of nature, which lay so profusely within his reach. In the summer of 1704 he visited the recesses of the Apennines, and climbed their stupendous precipices. The scenery which inspired the genius of Salvator Rosa, enlarged the mind, and enriched the acquisitions, of our philosopher, and he defended, like a fertilizing river, to benefit the world below. The following year, he undertook a less laborious journey, to visit his literary friends at Lucca, Pisa, Leghorn and Florence, and was invited by prince Ferdinand of Tuscany to Pratalino, where he met with a snall flattering reception, the prince’s hospitality.
hospitality being extended to the peripatetic, as well as literary, 
accommodation of Vallisneri at Florence itself, where every 
door and cabinet were opened to him. From Leghorn he 
proceeded to Genoa, not without the usual adventure of a 
shipwreck of his wretched felucca, by which accident he 
had the advantage of seeing for the first time a noble Date 
Palm, in the open ground. He returned from Genoa to 
Padua by land. These and many similar excursions, in 
several following seasons, were productive of much informa-
tion to a man, who could not pursue the most beaten track 
without picking up something. Indeed his line of study 
was new at that period. He contributed to open a new 
world to microscopic observers, and to direct their en-
quiries to advantage. He had by this time collected an 
ample museum, and choice library, both of them the more 
valuable and useful, for being collected by himself with 
some particular object.

His studies were not impeded nor embittered by domestic 
cares or chagrin; for though he married in 1692, and 
his wife brought him eighteen children, she was a woman of 
prudence and good fortune; she directed his family in such a 
manner as to render his home comfortable and happy. Of 
the children, four only survived their infancy; a son who 
bore his father's name, and inherited his activity of disposi-
tion, and three daughters, two of whom became nuns at 
Padua. The third, named Claudia, a woman of rare 
talents, and the highest moral worth, remained unmarried at 
home.

In the beginning of 1728, Rinaldo I., duke of Modena, 
sent Vallisneri an unlicensed patent of knighthood, for him-
self, his son and their descendants. This honour was the 
more just, as he had, eight years before, declined an invitation 
from pope Clement XI. to become physician to his 
holiness in the place of the famous Lancii. He had also 
refused to accept, from king Victor Amadeus, the appoint-
ment of first professor of physic, at Turin, with a very 
large stipend. Nor were academical honours wanting to his 
fame. He was associated with the Academy Nature Curio-
forum, the Royal Society of London, and almost every 
learned body in Italy. Thus in the indefatigable pursuit of 
knowledge, and well-merited fame, he completed his sixty-
eighth year. On the 12th of January, 1730, he was at-
tacked with a sort of epidemic cacharr, accompanied with 
great debility, which, falling on his lungs, carried him off 
on the 18th. He was interred in the church of the Eremi-
tani at Padua, where his son erected a monument to his 
memory with the following just and elegant inscription.

D. O. M.
Antonio Vallisnerio
Artsi Medicei afflorti eximio
Nationalis Historiae ac Philosophiae
ReIitutorum celeberrimo
Summis honoribus undaqueque aucto
Antonius filius mar. p.
MDCCXXX. Aet. LXVIII. Mens. VIII.

The filial piety of the younger Vallisneri accomplished a 
more laudable memorial for his distinguished parent, in a com-
plete and splendid edition of all his works, making three 
folio volumes, printed at Venice in 1733, and illustrated 
with plates, in one of which the fructification of the Lenna 
is exhibited. These writings, being frequently in the form 
of letters, are diffuse, but the Italian style of the author is 
esteemed by his countrymen. The whole work might be 
epitomized with advantage, and would be found rich in 
originality and acuteness. An ample life of Vallisneri is 
 prefixed to this publication, from whence we have extracted 
the above account. He is certainly entitled to rank with 
Redi, Malpighi, Reaumur, and Swammerdam, as an origi-
nal observer of the intricate and obscure physiology of 
infests, and the lower tribes of the animal kingdom. He 
co-operated with those philosophers in clearing away the 
theory of equivocal generation, and other rubbish of the 
schools. In medicine his merit is of a very high order, and 
his name marks an epocha in the history of that science in 
Italy. Those who had so long flumed over the mazy 
follies of ancient lore, were by him turned unwares out of 
their dormitories and easy chairs, before they had time to 
awake, much less to defend their pofts. He exalted the 
science from the study of books, to that of nature, and 
succes was the natural refult. In practice he had the good 
fortune to promote the use of the Peruvian Bark, which, at 
that period, had much prejudice to contend with. His prefi-
ptions were generally simple, and all his inquiries were free 
from credulity and prejudice. We cannot here enumerate 
the titles of all his various pieces. What relates to the 
theory of generation is most elccmled; and he had the cour-
age to oppose the then famous vermicular hypothesis of 
Leeuwenhoek. The memory of Vallisneri has been pre-
served by his countryman Micheli, in the name of a very 
curious and interesting genus of plants. See the next 
article.

VALLISNERIA, in Botany, was dedicated by Micheli, 
to the honour of his distinguished countryman, of whom we 
have given an account in the preceding article. No genus 
could have been more fortunately selected, as its history is 
now, in the writings of Linnaeus, identified with that of the 
generation of plants; of the theory of which, as taught by 
that illustrious botanist, it affords one of the most conven-t 
and celebrated proofs. Yet Micheli was ignorant of this 
striking fact; and has absolutely, as we shall find, described 
the two sexes as distinct genera. The male plant is his 
Vallisneroides. We can offer no apology for this oversight 
of so faithful an observer, but his attachment to Tourne-
fort, who shcut his eyes against the sexual doctrine, and 
Micheli durst not take the liberty of opening his own.—Mich. 
t. 10.—Clas and order, Dictea Dianidea. Nat. Ord. 

deep, oblong, often cloven, reflexed segments, including a 
conical, compressed Common Spadix, covered all over with 
several flowers forming a spike. Cor. of one petal, in three 
deep, obovate, widely spreading, or reflexed, segments, 
without a tube. Stam. Filaments two, erect, the length of 
the corolla; anthers roundish, simple.

Female, on a different plant, Cal. Sheath of one leaf, 
single-flowered, cylindrical, elongated, with two erect seg-
ments at the extremity. Perianth superior, in three deep, 
ovate, equal, spreading segments. Cor. of one petal, in three 
deep, linear, abrupt segments, shorter than the calyx. 
Pfiff. German inferior, cylindrical, longer than the seath; 
flyle very short; stigma in three deep, oval, convex seg-
ments, downy on the upper side, cloven half way down, 
rather longer than the calyx, and bearing at the back a 
small oblong appendage. Peric. Capsule cylindrical, of 
one cell, not burring. Seeds numerous, ovate, inserted in 
many rows into the sides of the capsule.

Eff. Ch. Male, Sheath in two deep segments. Spadix 
covered with flowers. Corolla in three deep segments.

Female,
V A L

Female, Sheath divided, single-flowered. Perianth in three deep segments, superior. Corolla in three deep linear segments. Stigmas three, cloven. Capsule cylindrical, of one cell, with many seeds.

Off. Such is the original genus, of which Micheli's figure is clearer than his description. There can be no doubt that the part marked A, B, in the middle of his plate, below, represents the under side of the three stigmas. Linneus, who never saw a living flower, mistook this point; but has corrected himself in manuscript. We have profit of this, and partly of Mr. Brown's definition. V. oellandra of Roxburgh, if it be thought the same genus, must lead to some further correction of the generic characters.

1. V. spiralis. Spiral Vallisneria. Linn. Sp. Pl. 1441. Willd. n. 1. Brown n. 1. (V. palustris, alge folio, italica, folis in fumitate denticulatis, flore purpureo; Mich. Gen. 12. t. 10. f. 1, female. Vallisoroides palustris, algio folio, italicum, folis in fumitate tenuiffime denticulatis, floribus albis, six confecipuis; Mich. Gen. 13. t. 10. f. 2, male.)—Stalk of the female flower spiral. Leaves flowering, linear, obtuse, finely serrated at the summit; tapering at the base.—In ditches in Italy, especially near Pisa. Communicated from near Arles, in Provence, by the late Dr. Broussonet, in 1781. Mr. Brown found, what he is almost certain of being the same species, in New South Wales, about Port Jackson. This plant is perennial, flowering in summer and autumn. The root consists of long fibres, and propagates itself very widely by runners, so that the canals, in which the Vallisneria grows, are choked up with its foliage, and rendered not navigable for boats. Stem none. Leaves all radical, very long, linear, falcated, pellucid, ribbed, smooth, entire, except at the end. Stalks of the female flowers very long, thread-shaped, unbranched, naked, fingle-flowered, curiously spiral, but becoming more or less straight when the flower is ready to open, by which means the latter floats on the surface, and after impregnation, the stalk coils up again, and lodges the fruit at the bottom of the water. This fruit is three or four inches long, and judged by Mr. Brown to be rather of the nature of a berry than a capsule. The male flowers grow on a separate plant, on short, simple, straight, radical stalks. Each minute white flower separates from the common fadice, and rises closed, like a little bubble, to the surface of the water. Burbling there, these flowers float about in immense numbers, covering the water, and impregnating the females above described. Micheli has faithfully described the economy of this interesting plant, though blind to its physiology.

2. V. americana. American Vallisneria. Michaux Borcl.-Amer. v. 2. 220. Willd. n. 2. Pursh n. 1.—"Stalk of the female flower nearly straight. Leaves erect, linear."—At the bottom of muddy and slow rivers in North America, flowering from Augslit to October. Michaux observed it in the Mississippi and St. John's rivers, Florida; Pursh in the Delaware, near Philadelphia, and elsewhere. The latter doubts whether it be a distinct species from V. spiralis; for he found the stalks of the female flowers to be, in deep water, really spiral. Michaux remarks, that the leaves are erect, less elongated than in the foregoing, and not tapering at the base. These circumstances may all be owing to the shallowwells and stillness of the water.


4. V. oellandra. Odontandra Vallisneria. Roxb. Coromand. v. 2. 34. t. 165. Willd. n. 3.—Stalk of the female flower, which...
VAL

which runs into the Schuylkill, N. lat. 40° 7'. W. long. 75° 30'.

VAL Forge, a place in Pennsylvania, near the union of Vally Creek with the Schuylkill. Here general Washington lay encamped in the winter of 1777, 1778; 20 miles N.W. of Philadelphia.

VALMAROSSA, a town of Istria; 8 miles E.S.E. of Capo d'Istria.

VALMASEDA, a town of Spain, in the province of Bilbao; 13 miles S.W. of Bilbao.

VALMIKI, in Biography, the name of a very celebrated Hindu poet, the author of that extraordinary poem in the Sanscrit language, entitled Ramayana, under which word we have given some account of its contents. Sir William Jones, in his ninth annivary discourse to the Asiatic Society of Calcutta, delivered February 1792, gives his opinion that the Cufh of Moses and Valmiki were the same personage. (See Ramayana and Triveni.) But we are not in possession of any biographical particulars respecting him. His great work, the Ramayana, is esteemed the earliest epic poem, and is cited as nearly equal in authority with the most sacred of the Hindoo books, such as the Purana and Veda, ascribed to Vyasa. See these articles.

VALMONT, de Bomare, James Christopher, was born at Rouen, in September, 1731. He was intended for the bar, but his inclination to natural history induced him to devote himself entirely to that pursuit, and having obtained an order from the duke d'Argenfon, the minister at war, to travel for the improvement of science, with sufficient funds for the purpose, he spent several years in visiting the principal cities of Europe, and examining the most famous collections engaged in natural history. Mines and metallic establishment engaged his particular attention; having visited Lapland and Iceland, he described its volcanoes; and returned, with many curious objects, to Paris in July 1756. He then began a course of lectures on natural history, which were continued till the year 1786. These lectures contributed to establish his reputation, and he had many advantageous offers from the courts of Russia and Portugal, the acceptance of which he declined. His works are as follow: viz. "Catalogue d'un Cabinet d'Histoire Naturelle," 1758, 12mo.; "Extraits Nomenclature du Systeme complet de Mineralogie," 1779, 12mo.; and "Nouvelle Expedition du Regne Mineral," 1761, 1762, 2 vols. 8vo. But his capital work was his "Dictionnaire raisonne Universel d'Histoire Naturelle," in 6 vols. 8vo. This has passed through several editions in 8vo. and 4to., and being the first of its kind, served as the basis of all the dictionaries of natural history that have appeared since that time. One of the latest editions appeared at Lyons in 1800, 15 vols. 8vo. This celebrated naturalist died at Paris, in August, 1807. Gen. Bioog.

VALMONT, or Valmont, in Geography, a town of France, in the department of the Lower Seine; 6 miles E. of Fécamp.

VALMONTONE, a town of the Popedom, in the Campagna di Roma; 6 miles S. of Palestrina.

VALNDORF, a town of Hungary; 5 miles S.W. of Szeben.

VALOE, an island of Sweden, in the bay of Chrlitiania; 7 miles S.S.E. of Tonberg.

VALOGNES, a town of France, and principal place of a district, in the department of the Channel. In 1546, it was pillaged by the English; 7½ petty N. of Coutances. N. lat. 49° 31'; E. long. 1° 23'.

VALOIS, Henry de, or VALESIUS, in Biography, born at Paris in 1603, and educated in the Jefuits' school, was admitted an advocate of the parliment of Paris, after having previously studied the civil law at Bourges. Declining the profection of the law, he devoted himself to literature, and particularly to the study of Greek and Latin authors. The affability of his application impaired his flight, the imperfection of which was in some degree counterbalanced by the retentiveness of his memory. Besides some private pensions which were granted him, he was appointed, in 1660, historiographer of France, with a considerable salary. At the age of sixty-one he married a lady, by whom he had seven children; and died in 1716, at the age of seventy-three years. His temper was hard and irritable; fond of praise, and sparing in bestowing it on others; impatient and querulous under bodily indigitation, but unfailing to the sufferings of others. With many infirmities and failings, he was a learned, discriminating, and accurate critic. His principal publications were, an edition of the "Ecclesiastical History of Eusebius," with a Latin version and notes; the "Ecclesiastical Histories of Socrates and Sozomen," as well as of "Theodoret and Evagrius," a valuable edition of "Ammiannus Marcellinus;" "Remarks upon Harpocrasin;" "Exposition Lib. V.;" with other pieces, printed after his death at Amsterdam, in 1740, under the care of Peter Burman. Moreri.

VALOIS, Adrian de, brother of the preceding, was born at Paris in 1607, and studied in the Jefuits' college. Although he acquired a competent knowledge of the Greek and Latin languages, he attached himself principally to the study of French history; and in 1646 appeared the first volume of his "Gesta Francorum," which was followed by two more in 1658. He began with the reign of the emperor Valerian, and traced the history of the Franks to the deposition of Childeric; and his work was generally admired. As a recom pense, he was associated with his brother in the office of historiographer, and in the pension annexed to it. In 1675 he published "Notissae Gallorum," fol, comprising, in alphabetical order, an account of the geography, towns, monasteries, &c. of France, deduced from its early records and histories. He followed the example of his brother, with whom he lived on terms of intimate union, by marrying a young wife, who brought him two children. He published, besides the works already mentioned, an edition of two poems written in the middle ages, a second edition of his brother's "Ammianus Marcellinus," and some other pieces relating to antiquities. He died in 1692, at the age of eighty-five years. His son, CHARLES de VALOIS DE LA MARRE, was also a man of letters, and became a member of the Academy of Inferences and Belles Lettres, and antiquary to the king. He published a collection of critical, historical, and moral reflections, and Latin poems under the title of "Valerian," and edited two poetical works of Vaillant the medallist, and wrote several papers for the Academy, of which he was a member. He died in 1747, aged seventy-six. Moreri.

VALOMBRESO gives its name to a congregation of Benedictine monks, founded in the Apenines by Guisbert of Florence, in the 11th century; who, in a short space of time, propagated their discipline in several parts of Italy.

VALON, in Ancient Geography, a river of Africa, in Mauritania Tingitana. Pottery.

VALONA, in Geography, a sea-port town of European Turkey, in Albania, on a gulf of the Adriatic, gained by the Turks from the Christians in the year 1464. In the year 1590, it was taken by the Venetians, but retaken by the Turks the year following; 68 miles S. of Durazzo. N. lat. 40° 36'; E. long. 19° 28'.

VALONGO, a town of Portugal, in the province of Beira; 21 miles S.E. of Lamego.

VALO-
VALONIA, in Botany. See Velani.

VALOR BENEFICIORUM, in Law. See First-fruits.

VALORE MARITAGI, Value of Marriage, a writ which anciently lay for the lord, after having proffered suitable marriage to an infant who refused the same: to recover the value of the marriage. See Guardian.

VALORSINE, in Geography, a town of France, in the department of the Leman; 15 miles S.E. of Notre Dame d'Abondance.

VALOKE, a town of European Turkey, in Moldavia; 52 miles N. of Jassy.

VALPARAYSO, a town of Spain, in New Castile; 15 miles S. of Huete.

VALPARAYSO, a sea-port town of Chili, situated on a bay of the South Pacific ocean. This town was at first very mean, confisting only of a few warehouses, built by the inhabitants of St. Jago, for laying up their goods till shipped off for Callao, the harbour of Valparayo being the nearest port of that city, from which it is only 60 miles distant. The only inhabitants at that time were the few servants left by their respective masters for taking care of the warehouses, and managing their mercantile affairs. But in process of time, the merchants themselves, together with several other families, removed from St. Jago, in order to be more conveniently situated for trade; hence which it has gradually increased, so that at present it is both large and populous; and would be still larger, were it not for its inconvenient situation, standing so near the foot of a mountain, that a great part of the houses are built on its acclivity, or in its breaches. Valparayo, besides its parish-church, has a convent of Franciscans, and another of Augustines; but very few religious, and the churches belonging to them small and mean. It is inhabited by families of Spaniards, and calls both of Mulattoes and Mestizos. Here is a military governor nominated by the king, who having the command of the garrisons in the several ports, and of the militia of the place and its dependencies, is to take care that they are properly disciplined. The proximity of this port to St. Jago, has drawn hither all the commerce formerly carried on at that city. To this it owes its foundation, increase, and present prosperity. All the Callao ships which carry on the commerce between the two kingdoms come hither. In this port they take in wheat, tallow, cordovan-leather, corn, and dried fruits, and with these return to Callao; and a ship has been known to make three voyages in one summer between November and June. Valparayo is abundantly supplied with provisions from St. Jago and other places in its neighbourhood. Among the several kinds of game there is here such a plenty of partridges in their teason, which begins at March and lasts several succeeding months, that the muleteers knock them down with flocks, without going out of the road, and bring great numbers of them to Valparayo. But few of these or any other birds are seen near the town. It is the fame with regard to fish, very little being to be caught either in the harbour or along the coast, in comparison of what may be taken in the other parts. The harbour is everywhere where free from rocks and floods, except to the north-east of the breach De los Angelos, where, about a cable's length or two from the land, is a rock, which must be more carefully avoided, as it never appears above water, but sometimes has not a depth sufficient for a ship of any burden to pass over it; 225 miles N. of Conception. S. lat. 33° 5', W. long. 72° 16'.

VALPERGA, a town of France, in the department of the Dora; 11 miles S.S.W. of Ivrea.

VALPERSCHWEIL, a town of Switzerland, in the canton of Berne; 10 miles N.W. of Berne.

VALPO. See Walpo.

VALPUESA, a town of Spain, in Old Castile; 10 miles N.N.E. of Frias.

VALREAS, a town of France, in the department of the Drôme; 18 miles N.N.E. of Orange.

VALS, a town of France, in the department of the Ardèche, celebrated for several medicinal springs in the neighbourhood; 12 miles S.W. of Privas.

VALSA, in Botany, Adanson Fam. v. 2. g. Scop. Carn. v. 2. 397, an unexplained name, used by those authors, for what is now the Sphæria of botanicals; see that article.

VALSALVA, Anton-Maria, in Biography, an eminent anatomist, physician, and surgeon, was born in 1666, at Imola, in Romagna. Having received the first elements of literature in the Jesuits' seminary, he was sent to the university of Bologna, and placed under the immediate tuition of the celebrated Malpighi, and here he pursued his various studies with an avidity which impaired his health. He graduated at Bologna in 1687, and connecting surgery with physic, acquired high reputation. He simplified and improved surgical instruments, banished from Bologna the cruel practice of cauterizing the arteries after amputation, and in the cure of deafness employed manual operations. In 1697 he was chosen professor of anatomy in the university, and appropriate buildings were erected for his use at the anatomical theatre. The school of Bologna acquired celebrity under his direction, and some of his pupils became eminent in their profession. Of this number was Morgagni. In advanced years Valsalva grew corpulent and lethargic, and was carried off by an apoplectic stroke in February 1723, at the age of fifty-seven years; leaving a widow and three daughters. His anatomical museum was bequeathed to the Institute of Bologna, and his various apparatus of chirurgical instruments to the hospital for incurables. The principal of his works is a treatise "De Aure Humana," reprinted at Bologna in 1704, 4to. and again with Morgagni's Epitaphes, at Venice, 1740. After his death, Morgagni published three of his "Differentialia" on anatomical subjects, which had been read before the Institute. This great anatomist's work "De Sedibus et Causis Morborum," contains a number of dissections by Valsalva. Morgagni Vit. Valsalv. Haller. Gen. Biog.

VALSECA, in Geography, a town of Spain, in Old Castile; 11 miles N. of Segovia.

VALSTAGNO, a town of Italy, in the Vicentin; 18 miles N. of Vicentin.

VALTANAS, a town of Spain, in the province of Leon; 15 miles E. of Valencia.

VALTELINE, a lordship of Italy, at the foot of the Alps; bounded on the N. by the Grisons, on the E. by the county of Bormio and the Breffan, on the S. by the Bergamasco and the Milanese, and on the W. by the county of Chiavenna and the Milanese. This country, which is called by the Grisons Veltin, or Veilin, and by the inhabitants Valle Tellina, is a valley inclosed between two chains of lofty mountains, about fifty miles in length, and from eight to twenty in breadth. It is exceedingly fruitful, and throughout its whole extent watered by the Adda, which, after receiving all the streams issuing from the forest, discharges itself into the Como lake. In some parts the heat is intense, but in others more moderate, and on the hills and the greatest part of the adjacent valleys the air is moistly cool. Of this variation in its temperature, the necessary consequence is a variation in the products of the earth. The levels in this valley, through which the Adda pursues its course, and the breadth of which in some parts...
is not less than a mile, exhibit a delightful variety of corn-fields, meadows, vineyards, and orchards of chestnuts and other fruits. The vineyards on the mountains towards the north produce the best wine in the whole country, and above them are corn-fields, meadows, and pasture-lands. The hills on the south side are covered with fine woods of chestnuts, fields, meadows, and rich pastures, in which graze numerous herds of cattle. This country abounds also in excellent red wine, of a most delicious flavour, and of so good a body that it will keep for a whole century, improving both in taste and wholesomeness, and gradually turning paler, till at length its redness totally disappears. Great quantities of this wine are exported. The apples and pears in moat places are not much esteemed; but the peaches, apricots, figs, and melons, are exquisite. Here is likewise plenty of lemons, citrons, almonds, pomegranates, chestnuts, and other delicious fruits. Its soil also would produce all kinds of grain andpulse; but the levels being interpenetrated with swampy places, which have hitherto remained without culture, and the vine-trade chiefly engrossing the attention of the inhabitants, it does not yield a sufficiency for their consumption without importation. Some parts grow hemp, and in the levels, particularly on the higher grounds and the mountains, the wine pastures. Bees and flilk-worms are bred here in vast numbers. The Adda yields plenty of fish, and is noted for its trout, which often weigh from fifty to sixty pounds. The whole of their mine-works here confine in a few iron-founderies.

The chief commerce of the Valteline is carried on with Milan and the Grifons. The principal exports are wine and flilk, which turn the balance of trade in its favour; they enable the inhabitants to exist without any manufactures, and help to supply the money which is exacted by the governors.

The wine is sent into the Grifons, Germany, the Venetian states, Bormio, and occasionally to Milan. Upon a rough calculation, 73,000 foms, or horse-loads, are annually exported. The flilk is sent to England, Zurich, and Baffe. The district of Delebio and Talomara produces the finest flilk, the neighbourhood of Sondrio the next in quality, and the district of Tirano supplies an inferior fort. Three thousand pounds of the finest fort, which is esteemed as good as the flilk procured from Piedmont, is sent annually to England by way of Oland. The greater part is wound in the Valteline, for which purpose there are flilk-mills in the principal districts.

Besides these commodities, the Valteline exports planks, cheese, butter, and cattle. The inhabitants receive from Milan, corn, rice, salt, filken fluffs; from Germany and Switzerland, cloth and linnen; from Genoa, spices, coffee, and sugar.

There are no manufactures in the Valteline, and almost all the menial trades are exercised by foreigners.

The population of the Valteline may be estimated from the following rough sketch:—

<table>
<thead>
<tr>
<th>District</th>
<th>Contains</th>
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<tbody>
<tr>
<td>Upper Distrìct</td>
<td>20,000</td>
</tr>
<tr>
<td>Government of Teglio</td>
<td>8,000</td>
</tr>
<tr>
<td>Middle Distrìct</td>
<td>18,000</td>
</tr>
<tr>
<td>Lower Distrìct</td>
<td>16,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>62,000</strong></td>
</tr>
</tbody>
</table>

The cottages of the peafants, which are built of stone, are large, but gloomy, generally without glass windows; and exhibit an uniform appearance of filth and poverty.

Perhaps no part of Europe is more fruitful than the Valteline, and yet there is no country in which the people are more wretched. Many reasons may be assigned for the misery to which they are reduced. The first and principal cause is the form of government. The governors generally abuse the exorbitant authority entrusted to them by the laws; the peafants are imprisoned upon the slightest information; and as all transgressions are punished by fines, an accused person is seldom acquitted; so that a considerable number are annually ruined in the courts of justice.

Befide the individuals who are suppofed to suffer for their own guilt, the parishes are subject to continual affiffions, towards defraying the expenses for the trial and imprison-ment of the poor parishioners: if they are unable to pay the sum required, it is demanded from the parish to which the criminal belongs. In this cafe it frequently happens, that the affiffions, instead of being laid upon the landholders, are imposed upon each hearth, by which means the chief burden falls upon the poor.

Another cause of wretchedness proceeds from the present state of property. Few of the peafants are landholders; as, from the continual expropriation with which the people have groaned for above two centuries, the freeolds have gradually fallen into the hands of the nobles and Grifons, the latter of whom are suppofed to pollife half the elastic in the Valteline. The tenants who take farms do not pay their rent in money, but in kind: a sort of general poverty. The peafant defrays the costs of cultivation, and delivers nearly half the produce to the landholder; the re-maining portion would ill compensate his labour and ex- pense, if he was not in fome meafure befriended by the fertility of the foil. The ground feldom lies fallow, and the richerts of the valley produce two crops; the first is wheat, rye, or fpelt, half of which is delivered to the proprietor; the fcond is generally millet, buck-wheat, maize, or Turkey corn, which is the principal nourishment of the common people: the chief part of this crop belongs to the peafant, and enables him in a plentiful year to support his family with some degree of comfort. Thofe who inhabit the districts which yield wine are the moft wretched; for the trouble and charge of rearing vines, of gathering and pressing the grapes, it is often found in the cottages that they are fo apt to confume the flare of liquor allotted to them, in in-toxication, that, were it not for the grain intermixed with the vines, they and their families would be left almost deftitute of subsistence.

Befide the bufines of agriculture, some of the peafants attend to the cultivation of flilk; they receive the eggs from the landholder, rear the flilk-worms, and are entitled to half the flilk. This employment is not unprofitable; for although the rearing of the flilk-worms is attended with much trouble, and requires great caution; yet as the occupation is generally entrusted to the women, it does not take the men from their labour. With all the advantages, how- ever, derived from the fertility of the foil, and the variety of its productions, the peafants cannot, without the utmost difficulty, and contant exertion, maintain their families; and are always reduced to the general diftrefts, whenever the feafon is unfavourable to agriculture.

To these caufes of penury among the lower classes, may be added the natural indolence of the people, and their tendency to superflition, which takes them from their labour.

This country is without so much as one city, but has some considerable towns, with many thriving villages. Its language is a corrupt kind of Italian. The Roman Catholic is the only religion. Their clergy are under the jurif-diotion...
Valtelline.

...ction of the bishop of Como. They are not responsible to the ordinary courts, their immunities being so exorbitant as to render them almost independent of the civil authority; they are only amenable to the court of the bishop of Como. If a priest is guilty of any misdemeanor, his person cannot be secured without the concurrence of the bishop and governor of the district in which the crime was committed. It is therefore extremely difficult to bring an ecclesiastical to justice; as impunity is easily purchased, either by fearing the favour of the bishop's vicar or of the magistrate. Nor are these permissive privileges confined merely to the clergy, but extend to all persons wearing an ecclesiastical dress, with the permission of the bishop of Como.

All civil causes of the clergy, below the value of two hundred livres, are decided by the vicar of the bishop of Como; above that sum, they are brought before the bishop. An appeal from his decision lies to the pope's nuncio at Lucern, from him to the ecclesiastical tribunal at Aquilea, and from thence to Rome.

The whole country is divided into three districts or terzeros, called Sopra, Mezzo, and Sotto, or Upper, Middle, and Lower. Tirano is the capital of the first, Sondrio of the second, and Morbegno of the last. It is divided into five provinces, viz. those of the upper district; of the middle district, called Alto the government of Sondrio; of Teglio, of Morbegno, and of Traona.

Each of these five governments is subject to a magistrate appointed by the Grifons, who has changed every two years. The magistrate over the middle district is called governor of the Valtelline, and possesses in some respect a superior degree of authority to the others, who are styled podestias; he is also captain-general of the Valtelline.

All public concerns, which do not fall under the jurisdiction of the Grifons, are dissipated and determined by a council composed of five representatives, one from each district, which meets as occasion requires at Sondrio.

The Valtelline, together with the counties of Chiavenna and Bormio, (which had long been the constant source of hostility between the bishops of Como and Coire,) came, in the year 1356, under the dominions of Azzo Vificonti, sovereign of Milan, who quietly transferred them to his successors. Upon the death of John Vificonti, one of Azzo's successors, his territories were divided between his nephews Galeazzo and Barnabas. Upon the demise of Galeazzo, his son, John Galeazzo, secured the person of his uncle Barnabas, and having confined him in the castle of Trevio, until his death, which happened in 1395, annexed his dominions to his own, and became by this union, the greatest and most powerful prince in Italy. Maltino, son of Barnabas, took shelter, upon his father's imprudence, with Hartman, bishop of Coire, and died in exile, without recovering any share of his inheritance. Previous to his death, he formally ceded all his right and title over the Valtelline, Chiavenna, and Bormio, to the bishop of Coire, as a mark of gratitude for his protection. To this cession, at that time, of no avail, the Grifons owe the possession of these provinces. The claim lay dormant for above half a century, until some discontent arising in the Valtelline, in 1487, the Grifons made an irruption into that country, in support of the bishop's rights, but their arms not being at that time attended with success, they purchased a peace by renouncing all pretensions to the Valtelline. They renewed, however, their claim in 1512, when Ludovico, called the Moor, duke of Milan, was taken prisoner by Louis XII.; and the whole Milanese, comprising the Valtelline, occupied by that monarch. Upon this revolution, the Grifons, in conjunction with the bishop of Coire, entered the Valtelline, and having expelled the French troops, took possession of the country; they were received with joy by the inhabitants, who did homage to their new sovereigns, and in return obtained from them the confirmation of all their privileges. A compromise was immediately entered into between the bishop of Coire and the three leagues to share between them the sovereignty of this country. In the following year, Maximilian Sforza, raised to the ducal throne of Milan upon the expulsion of the French, ceded in perpetuity the possession of the Valtelline, Chiavenna, and Bormio, to the bishop of Coire, and the Grifons; and this cession was ratified by Francis I. in the treaty of peace which he concluded with the Swifs and their allies, the Grifons, in 1542, when he obtained possession of the Milanese. In 1530, the republic of the Grifons acquired the whole dominion of the Valtelline, to the exclusion of the bishop of Coire, under pretence that the latter had not fulfilled his quota of men and money in the war with James of Medicis, in defence of their ceded countries; accordingly they compelled the bishop to sell his share of the sovereignty over the Valtelline, Chiavenna, and Bormio, for a yearly income of 575 florins, to be paid to the bishop and his successors out of the customs of Chiavenna. From that period, those provinces were possessed by the Grifons without molestation, until the rival interests of France and Spain, the intrigues of the pope, religious enthusiasm, the zeal of party, and the actions of the Grifon governors, kindled an insurrection which commenced with a massacre of the Protestants, and raged for a series of years with the most savage and unremitting fury.

During the contest wars, which from the accession of Philip II. the relentless ambition of the Spanish court entailed upon Europe, the German and Spanish branches of the House of Austria were inseparably united; and the council of Vienna were directed by the cabinet of Madrid. Under these circumstances, the Valtelline, which, by connecting the Tyrol and the Milanese, afforded the only secure passage for the junction of the Austrian and Spanish troops, became of signal importance.

The same reasons which rendered the Spaniards desirous to secure the Valtelline, induced the French to obstruct their designs. The Spaniards, however, pursued their projects upon the Valtelline without opposition, when they were freed from their most formidable rival, the count of Fuentes, governor of Milan, by assassinations, and availed themselves of the domestic intestine of the Grifons and the inhabitants. When all the Protestants were either destroyed or driven out of the country, the remaining inhabitants re-equipped their allegiance to the Grifons, and framing a new form of government, threw themselves under the protection of the crown of Spain, which sent an army to their support. The people of Bormio followed the example of the Valtelline, with this difference, that they did not massacre, but only expelled the Protestants. Having entered into an offensive and defensive alliance with the inhabitants of the Valtelline, they also formed an independent commonwealth.

The Grifons, divided among themselves, were totally unequal to the chastisement of their resented subjects. The Catholics were desirous of employing the irritation of Spain, for the purpose of recovering the Valtelline; the Protestants, inclined to vigorous measures, proposed an application to the Swiss cantons, Venice, and France. A violent discussion, which were not terminated without bloodshed, the Protestant interest prevailed, and a deposition was sent to those powers.
When cardinal Richelieu acquired ascendency, and effected a revolution in the French politics, he perceived the importance of the Valteline, and adopted measures, which proved successful; so that in two campaigns the Spaniards were driven from the Valteline, Chiavenna, and Bormio. Under the administration of Richelieu, it was agreed, that the Valteline should again be restored to the Grifons, upon the following conditions: no other religion but the Roman Catholic to be tolerated; the inhabitants to elect their own governors and magistrates either from themselves or from the Grifons, but always from persons of the Roman Catholic persuasion; and the governors to be confirmed by the Grifons. In return for these privileges, it was stipulated that the inhabitants should pay an annual tribute, the amount of which was to be settled by mediation. In consequence of this treaty, concluded on the 5th of March 1626, the French restored the forts of the Valteline into the hands of the pope, and evacuated the country.

When Richelieu had completed the reduction of the Huguenots by the capture of Rochelle, he turned the whole force of France against the Hause of Austria; and among other enterprises, directed his attention to the Valteline, but the Grifons, encouraged and aided by the Spaniards, drove the French from the country; the treaty of Milan produced a close alliance between the Spaniards and the Grifons; and the Valteline was restored. This treaty, contracted in the year 1635, secured to the Spaniards the passage of the valley, which was the great object of the war, and restored the Valteline, Chiavenna, and Bormio, to the Grifons, under the following conditions: an act of oblivion; the immunities of the subject countries to be confirmed as they existed before the revolution of 1623; no religion but the Catholic to be tolerated; no person of any other persuasion to be permitted to reside, excepting the governors, during the two years they should continue in office, and the Protestants possessed of lands, who should not be allowed to remain in the country above three months in the year; the privileges of the ecclesiastics to be restored in their full latitude.

Since the pacification of 1677, no material change took place in the state of affairs. The sovereigns of Milan have always cultivated the friendship of the Grifons; and the inhabitants of the Valteline endured a regular course of tyranny under the government of a free state; confirming a fact notorious in the annals of ancient Greece, that no people are more opposed to the subjects of a democracy.

During the progress of the French revolution, Bonaparte confirmed the union of the revoluted provinces with the Cifalpine republic; so that after a period of nearly three centuries, the Valteline, Chiavenna, and Bormio, were again incorporated with the Milanese under a republican government; but the expulsion of the late French emperor has restored the ancient arrangements in Italy, and the Valteline returns to its former poifforers. Coxe's Switzerland, vol. iii.

VALERIE, LA, a town of Canada, on the St. Lawrence, N. lat. 45° 54'. W. long. 73° 17'.

VALTHURAND, or VALTHERAND, a town of Holland, in Overffeld; 12 miles N.E. of Covenrod.

VALTRIERA, a town of Spain, in Navarre. Near it is a mine of fal gom; 10 miles from Tudela.

VALVA, in Ancient Geography, a mountain of Africa, being one of the most considerable in Mauritania Caffariensis.

VALVA, in Geography, a town of Naples, in Abruzzo Citra, the see of a bishop; 18 miles S.S.W. of Civita di Chieti.
VALUATION OF LAND.

of the land, which is the ground-work of the calculation; though it has little weight in the scale of valuation. The fee-simple value of an acre of land may be less than twenty shillings, or it may be more than an hundred pounds. Nevertheless, it is on the quantity the rental value is calculated; and it is usual for the person who parts with it to exhibit a "particular" of the estate or property on its disposition; nothing, or which ought to be, not only the aggregate quantity, but the number of acres that each piece or parcel contains, as well as other matters; and ought, most particularly, to specify the distinct quantities of the lands of different qualities; in order that their several rental values may be ascertained with greater ease and accuracy.

2. The intrinsic quality of the land, which is essential in forming the estate. But even this, in a general view of the value of lands throughout the kingdom, is often, it is said, of secondary consideration: for, in many cases, their values are given by situation, rather than by soil and sublirata. In some cases, as has been seen, the value of the situation may be a great many times more than that of the intrinsic value of land. But this excessive influence of situation is, however, limited in its effects, and is chiefly confined to the environs of large towns, and other extraordinary markets for produce of the farm-kind. A great majority of the lands of this country owe their values less to situation than to intrinsic quality; and to come at this with sufficient accuracy, is the most requisite, and, at the same time, the most difficult part of valuation; as it depends almost wholly on extemporary judgment, exercised on the frequently few data which rife to the eye in passing over the field of estimation. It is, therefore, almost needless to state, that to acquire the degree of judgment which is necessary to the execution of this difficult critical task, it is required to know and be perfectly acquainted with the nature and produciveness of lands of different appearances: a sort of knowledge which scarcely any thing but mature practice in the cultivation and use of lands of different qualities can sufficiently teach; though long habit may do much in ordinary cases towards hitting off the value of lands, without an extensive knowledge of the practice of agriculture.

There are cases, however, it is said, in which both of these qualifications are found insufficient to give any accuracy of judgment, even among provincial valuers of land. And a person who ventures to step forward as an universal valuer, should have either an extraordinary talent for the purpose, or should, after a suitable imitation, have had great experience in rural concerns in different parts of the kingdom.

3. The situation; which, although it has been already stated, that the value of the lands of this country, aggregated, confidered, depends less on situation than on intrinsic quality, yet in every part it has great influence. Thus, an acre of land, the intrinsic quality of which renders it, in an ordinary situation, in what regards locality merely, worth twenty shillings the acre, would, not be, it is observed, in some districts or places, be worth more than fifteen shillings, while in others it would bear to be estimated at twenty-five shillings, or even a higher price of rent, to a farmer on a large scale, and away from the immediate environs of a town, or any populous district of manufacture; for reasons that will be seen in examining the different particulars of situation. In the temperature of situation too, whether it be given by elevation, aspect, or exposure, a powerful influence is found, which is capable of altering exceedingly the value of lands. The same sort of soil and subsoil, it is said, which is not unfrequently seen on exposed mountains, and hanging to the north, and which in that situation is not worth more than five shillings an acre, would, if situated in a sheltered vale or tract, and lying well to the sun, be worth twenty shillings, or a greater rent. Even on climature, something confiderable in this business, it is thought, depends. In the southern part of the country, the harvest is, in general, a month earlier than in those of the north; though it is not regulated exactly by the climate, or the latitude of the places: this is consequently a circumstance that requires to be attended to by those who ffinish the values of estates or lands. For an early harvest is not only advantageous in itself, but gives time to till the ground, or to take an autumnal crop, which are advantages that a late harvest will not do well admit of being bad. And another kind of temperature of situation has still, it is supposed, more influence on the value of lands, which is that of the moistness of the atmosphere. A moist situation not only gives an uncertain and often late harvest, but renders it difficult and hazardous; as is too frequently experienced on the western coast-sides of this island. Even in the turn of surface, exercise is found, it is said, for the judgment. Lands lying with too steep or too flat surfaces, particularly when of the arable kind, and retentive, are of less value than those which are greatly swelling, so as to give a sufficient discharge to surface-water, without their being difficult of cultivation. Steep-lying lands are not only troublesome and expensive under the operations of tillage, but in taking out manures, and getting off the produce. Lands lying with an easy descent, or on a gently billyow surface, may be worth more by many pounds an acre in the money they will bring, than others of the same intrinsic quality, hanging on a steep. Another consideration of the same weight in valuing an estate, or other landed property, is a supply or water for domestic purposes, for the uses of live-flock, and for the purpose of irrigation. There are situations, it is said, in which a copious stream of calcareous water would enhance the fee-simple value of a large estate some thousand pounds. Likewise a sufficient supply of manure, whether dung, lime, marl, or other fertilization, being at a moderate price, and within a moderate distance of land-carriage, materially adds to the intrinsic value of lands. And the established practice of management of the district or county in which an estate or land lies, is capable of enhancing or depressing the value of it exceedingly. Even the single practical point of ploughing light and loamy lands with two oxen, or two active horses, instead of four heavy oxen, is capable of making a difference, on good land which is kept alternately in herbage and corn-crops, of from five to ten shillings a year, on the acre; or ten pounds an acre in the money value which it is worth.

The price of labour is also rated as another regulator of the marketable value of land in a given district. It is always right, however, to compare this with the habits of exertion and industry which prevail among farm workmen, before the extent amount of labour can be safely set down. The price of living too, or expence of house-keeping, prevalent among farmers, has its share of influence on the value of lands. In the more reclusive parts of the north of this country, the farmers, especially of the lower and the more inferior classes, and their servants, are fed, clothed, and accommodated, at nearly half the expence of those of a similar degree in many parts of the more central and southern districts. In a county where frugality prevails too, lands of a given quality will ever, it is said, bear a higher rent than they will where a more profuse manner of living has gained a footing. Hence, likewise, the spirit of improvement, or the prejudice against it, which prevails in a district, is a circumstance of some value, it is supposed, in this intention. For
if the former be in a progressive state, especially if it be still in the more early stages of its advancement, a rapid increase of rent may, with a degree of certainty, be expected: whereas, under the lagging influence of the latter, half a century may, it is thought, pass away before the golden chariot of improvement can be profitably put in motion. And lastly, may be noticed, the attractive centre to which the labours of the husbandman will ever tend,—markets, in which, more than in any other circumstance, we are to look for the existing value of lands. Their influence is not confined to towns and populous places of manufacture, for in ports, and on quays, whether of inlets, estuaries, rivers, or canals, markets are met half way; even by good roads their distance from the farm-field may be faid to be shortened.

In this detail of the particulars of situation in respect to the value of landed property, it is observed, the attention requisite to be employed by a valuer is called up to act in a county that is new to him is perceived. A person, or even a professional valuer, who acts in a district, the existing value of the lands of which he is sufficiently acquainted with, determines at sight, and according to the best of his judgment, on their respective values: for he knows, or ought to know, their current prices; what fuch and such lands let for in that neighbourhood; what he and his neighbours give, or would give, for lands of the same quality and flate, without advertiing to the particular circumstances of the situation, they being considered and given as the established amounts arising out of them; refting his judgment solely on the intrinsic quality and existing flate of each field or parcel as it passes under his eye. But let his skill be what it may in a county or district in which he has acquired a habit of valuing lands, he will, in a distant part or district, the current market prices of the lands of which may be ten, twenty, or fifty per cent. above or below those which he has been accustomed to put upon lands of the same intrinsic qualities and existing stales, find himself at a loss; until he has the current prices of the place or county, or has well weighed and considered the circumstances of situation: to which, in every case, he must necessarily attend, before he can determine their value under an improved practice, or venture to lay down general rules for their improvement.

Another class of circumstances which influence the marketable value of lands still remains, it is faid, to be enumerated and considered. These relate to their existing state, or the manner in which they lie at the time. Their state in respect to inclosure is a matter of great consideration. Open lands, though wholly appropriated, and lying well together, are of much less value, except for a sheep-walk, or a rabbit-warren, than the same lands would be in a state of fituable inclosure. If they be disjointed and intermixed in a state of common field, or common meadow, their value may be reduced one-third. If the common fields or meadows be what is often termed Larnas land, and become common as soon as the crops are off, the depression of value may be let down at one-half of what they would be worth in well-fenced and incumbered with that ancient custom. The difference too in the value between lands which lie in a detached state, though within well-fenced inclosures, and those of the same quality that lie in a compact form, or, in the familiar phrase, within a ring-fence, is considerable. The disadvantages of a fattered estate are, it is said, similar to those of a fattered farm. Even the single point of a want of convenient access to detached fields and parcels is, on a farm, a serious evil. And it is on the value of farms that the value of an estate or land is to be calculated. The state of the roads, whether public or private, within an estate, and from it to the neighbouring markets, or places of delivery of produce, is further an object of consideration. And in this view, the state of the water-courses, or fewers and ditches, within and below an estate, likewise requires to be examin'd into; as the expense of improvement or reparation will be more or less, according to their existing state at the time; or, perhaps, by reason of natural caufes, or through the obli-viency of a neighbour, and the defcentiveness of the present laws of the country in this respect, the requisite improvements cannot be effected at any expense. The state of drainage of lands that lie out of the way of floods, or collected water, requires also to be taken into consideration. For although the art of draining is now pretty well underflood, it cannot be practised on a large scale, without much cost. The state of the lands too, as to tillage and manure, is attended to more regard than is generally bestowed on it, in valuing them. Even to a purchaser, and fift more to a tenant for a term, their state in these respects demands a share of attention. Lands that are in a high state of tillage and condition, so as to be able to throw out a succedence of full crops, may be worth five pounds of purchase-money an acre, more than those of the fame properties, which are exhausted by repeated crops, and lie in a undefiled state of fowls; from which they cannot be rai'd, but at a great expense of manure and tillage. Their state, as to grafts or arable, is, it is thought, better underflood, and generally more attended to. Lands in a state of profitable herbage, and which have lain long in that state, are not only valuable as bearing a high rent while they remain in that condition, but, after the herbage has begun to decline, will seldom fail to throw out a valuable succedence of corn-crops. Hence the length of time which lands, under valuation, have lain in a state of herbage, especially if it has been kept under paturage, is a matter of inquiry and estimation in the execution of business of this fort. And, lastly, the state of farm buildings and fences is, it is conceived, a thing of serious congratulation. Buildings, yards, and inclosures, that are much let down, and gone to decay for want of timely reparation, incur a very great expense to raise them again to their proper state. And when great accuracy of valuation is called for, as where the purchase value of an estate is left to reference, and when the tenants are not bound, or if bound are not able, to put them in the required state, it becomes requisite to estimate the expense which each farm, in that predication, will require to put it in sufficient repair, so as to bring the whole into a fituable state of occupation. This comes, however, more properly under the head of deductions, encumbrances, and outgoings, which are considered below. The same principle of valuation as the above holds good too in ordinary cases.

In speaking of encumbrances and deductions, it is said, that it appears, by a long leafe, that the fee-simple value of an estate may be in effect annihilated. Even a lease for lives, with a mere conventional rent, may reduce it to nearly one-third of its fee-simple value. And every other kind of lease, if the rent payable be not equal to the fair rent-lead value at the time of the disposable, is an encumbrance, even to a purchaser who has no other object in view than that of securing his property on land, and receiving interest in rent for the money laid out. If personal convenience be immediately wanted, or improvements required to be done, a lease, though the tenant pays a full rent, becomes an obfacle to the purchase, and is consequently to be considered in fixing the value. And an error, which is not unfrequently committed in estimating the encumbrance of a lease for
VALUATION OF LAND.

for a term of years, is here, it is said, to be noticed. The difference between the lease rent and the full rental value, encumbered with the same outgoings and repairs as the lease rent, being ascertained, it is multiplied by the number of years unexpired, and the product in full deducted from the value of the land, free from such encumbrance. But from the product, thus found, ought to be deducted half the interest thereof, during the said number of years, together with that of one half-year over, if the rent be payable half-yearly, or of one year, if payable annually. For all that a purchaser has a right to expect is to receive the full rent for his land, during the continuance of the lease. The tenant pays him what the lease stipulates; and if the seller were to make up the remainder, at the end of every six or twelve months, whenever the tenant is to pay his part, the purchaser would receive the full rent, the same as if no encumbrance had existed. But if the seller pay down the whole sum in ready money, at the time of the sale, which in effect he does, he is certainly entitled to some discount for prompt payment. Thus, supposing the difference of rent, occasioned by the lease, to be ten pounds a year, and the length of the term to run to be ten years, the product would be one hundred pounds. And supposing, for the sake of calculation, the stipulated payments to be annual, the interest to be deducted would be the half of fifty pounds, (the interest of one hundred pounds for ten years, at 5 per cent.) with the half of five pounds (one year's interest), together amounting to twenty-five pounds ten shillings; which being deducted from one hundred pounds, the gross product, leaves seventy-two pounds ten shillings, the clear sum to be deducted. And the truth of this rule of calculation may, it is thought, be familiarly proved: for if the seller were only to pay the deficiency of rent, as it should become due, he would, during the first year, hold the whole hundred pounds in his hands, the interest of which, at 5 per cent., is 5l.

The first year (as above) he would hold £ 100 £ 5 0 0
The second ditto 90 4 10 0
The third ditto 80 4 0 0
The fourth ditto 70 3 10 0
The fifth ditto 60 3 0 0
The sixth ditto 50 2 10 0
The seventh ditto 40 2 0 0
The eighth ditto 30 1 10 0
The ninth ditto 20 1 0 0
The tenth ditto 10 0 1 0

27 10 0

In respect to tithes, where in valuing lands they are considered as tithe-free, the tithe or modus, if any, requires to be deducted, as an encumbrance; and from the great variation in the values of tithes and modules, according to cultum, and plans of occupation, it is the plainest way of proceeding to value all lands as free of tithe, and afterwards to make an allowance for whatever they may be estimated to be worth. In regard to taxes, too, although it may be called the custom of the country for proprietors to pay the land-tax, and the occupier all the other taxes; yet this is not the universal practice; nor is it, in valuing an estate on sale, and to be let at will, a matter to be inquired into. The annual amount of payable taxes, and other outgoings, are the facts to be ascertained: for whoever discharges them, they come as a burden upon the gross value of the lands, out of which they are payable. For if a tenant pay them, his rent is, or ought to be, ascertained and fixed accordingly. But

Vol. XXXVI.

if an estate on sale is already let under lease, for a term to come, it is highly requisite to ascertain what parts of the annual outgoings and repairs are discharged by the tenants, and what the proprietor will be liable to, during the term to run. The land-tax, where it still exists, is extremely uncertain as to its value; and the poor-tax is equally varying in different situations. The church, highways, and county rates are, taking them on a par of years, left liable to local uncertainty, and are consequently left entitled to inquiry by a value of lands. And the fixed payments, or rent charges, such as chief rents, quit-rents, annuities, endowments, schoolmasters' salaries, charitable donations, and others of the same kind, to which an estate is liable; also repairs of public works, buildings, roads, &c. incumbent on the estate, are subjects of inquiry and estimation; as well as the ordinary repairs. Further, too, the hazard or risk under valuation, as that of their being liable to be inundated in summer, or to be torn away by floods at any season, is entitled to mature consideration. For although these evils may generally be remedied by river-breaks and embankments, the erecting of them is mostly attended with great expense; and the estimated value of this becomes, in course, a fair deduction to be considered by the land-value. It is noticed that there are two practical methods of valuation, with respect to taxes and other outgoings, as in regard to tithes; namely, either to set down the gross value of the lands, and then to deduct the outgoings; or to view them under their encumbrances, and to estimate in a summary way their next rental value. The latter is the more general, but the less accurate, manner of performing the business.

This, it is said, is what relates to the purchase value of the lands, but that, appurtenant to an extensive estate, there are generally other valuable considerations; as minerals and foils, whether metals, fuels, calcareousities, or groffer earths; waters, whether they are valuable for fisheries, decoys, mills, domestic uses, or the irrigation of lands; and timber, as of woods and hedge-rows. Buildings, too, that are not let with the farms, but which bear rent, independent of the lands; which, when scattered over an estate, may well be considered as belonging to landed property. To these may be added, the estimated value of evident improvements; and, lastly, the abstract rights which arise out of appropriated lands, or their appurtenances, as the right of commonage, which is generally of some value, even when commons lie open, and may be of more, when they shall be enclosed; provided the cost of enclosure do not turn out to be more than the extra value of the appropriated lands, above which naturally or fortuitously attends the lands of the common right in their open state. The right of seigniority to fee-farm rents, or other chief rents, payable to the possessor of lands on sale out of the lands of other proprietors. These rents, though small, are of certain value in themselves; and the idea of superiority, which they convey to the minds of some, may be worth more than the pecuniary value; which indeed, where the farms are very small, as is often the case, is much lowered by the expense of collecting them. The rights of foundlands, or manorial rights, are at present, if not in their origin, very different from those last mentioned; and the value of which is to be estimated by the quit-rents, fines, heriots, echeats, and amereacements, which long cultum and a train of circumstances have attached to the given court. And beside what relates to the appropriated lands of the manor, the lord has a profit arising from the commonable lands, if any lie within it, as lord of the foill which cannot be broken without his permission; hence the minerals and foils which it covers belong to him, as well as the timber which grows upon the waft, and the
VAL

waters that are connected with it. Moreover, in ordinary cases, he is lord of the game which inhabits or frays upon his manor. This being, however, a right of pleasure rather than profit, has no fixed standard of estimation. The right of tithe, when attached to an estate, is the most defirable of abstract rights arising out of landed property. For as far as the right extends, whether to a lay rectory or a vicarial improprietary, the lands which it covers becomes in effect tithe-free; as every judicious proprietor incorporates the rents of the tithe with those of the lands out of which it is payable; thus, if the right, as it generally is, be rectorial, freeing them wholly from the encumbrance of tithes, as a tax on improvements, and as an obstacle to the growth of grain. The right of advowson, or the privilege of appointing a pastor to propagate religion and morality upon an estate, properly enough belongs to its owner; as no other individual is so intimately concerned in the moral conduct of its inhabitants. The right of representation, or election, or the appointment, in whole or in part, of a legislator to assist in promoting good order in the nation at large. And when classes of the community, it is asked, can produce a fairer claim to this right than the proprietors of the country? The value of these rights is left to others to estimate and determine. See Timber and Tithes.

The chief circumstances to be considered having thus been pointed out, and their importance and influence explained, in concluding the subject it may be observed, that the difference between the particulars that give value to a landed estate, and the encumbrances to which it is liable, is the net value of the property under valuation.

VALUE, Valor, in Commerce, the price or worth of any thing.

VALUE, Intrinsic, denotes the proper, real, and effective worth of any thing; and is chiefly used with regard to money: the popular value of which may be raised and lowered at the pleasure of the prince; but its real or intrinsic value, depending wholly on its weight and fineness, is not at all affected by the stamp or impression thereon. It is generally on the foot of this intrinsic value, that specie is received in foreign countries; though in the places where they are coined, and where the sovereign power makes them current, they sometimes pass for much more.

It is, in good measure, on the difference of those two values, one of which is, as it were, arbitrary, and the other, in some part, natural, that the difference of exchanges depends; and those still rising and falling, as the rate at which a specie is current, comes nearer or farther off the just price of the metal of which it consists.

VALUE, in Bills of Exchange, is used to signify the nature of the thing, (as ready money, merchandizes, bills, debts, &c.) which is given, as it were, in exchange for the sum specified in the bill.

From four different manners of expressing this value, some distinguished four kinds of bills of exchange. The first bears value received, simply and purely, which comprehends all kinds of value; the second, value received in money or merchandize; the third, value of mifliff; and the fourth, value underflood.

The first is dangerous, and the fourth but little used: accordingly, to have the value well expressed, and to prevent the ill consequences of overights therein, it is well provided by the French ordinance of 1673, that bills of exchange should contain the name of the person to whom the contained sum is to be paid; the time of payment; the name of him who has given the value; and whether it was received in money, merchandize, or other effects.

VALUE, Valor, or Valenia, in Law. Well gives us a nice difference between value and price; the value (says he) of things in which offences are committed, is usually comprised in indictments; which seems necessary in theft, to make a difference from petty larceny; and in trespasses, to aggravate the fault and increase the fine.

But no price of things fere nature may be expressed, as of deers, hares, &c., if they be not in parks or warrens. And where the number of things taken is to be expressed in the indictment, as of young doves in a dove-house, there must be laid pretii, or ad valentiam: but of divers dead things, ad valentiam, and not pretii: of coin not current, it shall be laid pretii, but of coin current, neither pretii nor ad valentiam: the price and value being certain.

VALVE, Valvula, from valves, folding-doors, in Hydraulics, Pneumatics, &c. is a kind of lid, or cover, of a tube or vessel, fo contrived as to open one way; but which, the more forcibly it is pressed the other way, the closer it shuts the aperture: so that it either admits the entrance of a fluid into the tube or vessel, and prevents its return; or admits it to escape, and prevents its re-entrance. For water, those valves are the bell which intercept the passage least; and none appear to answer this purpose better than the common clack-valve of leather, which is generally with-in single, or divided into two parts; but it is sometimes composed of four parts, united so as to form a pyramid, nearly resembling the double and triple valves which are formed by nature in the hearts of animals. A board, or a round flat piece of metal, divided unequally by an axis on which it moves, makes also a very simple valve. Where a valve is intended for intercepting the passage of steam, it must be of metal: such a valve is generally a flat plate, with its edge ground somewhat concavely, and guided in its motion by a wire or pin. For air, valves are commonly made of oiled filk, supported by a perforated plate or grating.

Valves are of great use in the air-pump and other wind-engines; in which they are ordinarily made of pieces of bladder, or oiled filk.

In hydraulic engines, as the emboli of pumps, they are frequently of leather; the figure round; and they are fitted to shut the apertures of the barrels or pipes.

Sometimes they are made of two round pieces of leather, inclosed between two others of brass; having divers perforations, which are covered with another piece of brass, moveable upwards and downwards, on a kind of axis, which goes through the middle of them all.

Sometimes they are made of brass, covered over with leather, and furnished with a fine spring, which gives way upon a force applied against it: but, upon the ceasing of that, returns the valve over the aperture. (See Pomp.) See alfo for the construction of different sorts of valves for the buckets of pumps, Defagurers, Exp. Phil. vol. ii. p. 156, &c; and for the description of a new valve by M. Belidor, ibid. p. 156.

VALVE, in Anatomy. See Valvula.

Constantine Varolius, a Bolognec, and physician of Gregory XIII., who died in 1570, was the first that observed the valve in the colon. Bart. Eufhachio, a native of San Severno, in Italy, discovered about the same time the valve at the orifice of the coronary vein; and that remarkable one at the orifice of the lower trunk of the vena cava, near the right auricle of the heart: though he did not take it for a valve, but merely for a membrane.

Sig. Lancii, physician to pope Clement XI., who first published Eufhachio's works, takes the use of this valve to be, to prevent the blood of the upper vena cava from striking
striking with too much violence against that of the lower; and Mr. Winlow, who has confedered it very diligently in the Memoirs of the Royal Academy of Sciences, is much of the same opinion.

But as it gradually dwindles in children, and at length becomes quite lost in adults, still diminishing as the foramen ovale does, it should seem to have some other office, and that chiefly regarding the circulation of the blood in the fetus. See Circulation of the Blood, and Fetus.

Valve, in Gardening, the divided parts of a feed-veffel, or properly the external division of a dry feed-veffel, such as a capsule or pod; as in the pea, bean, vetch, and many others, which, when ripe, splits into two or more divisions, in order to throw out the contents, each of which divisions is denominated a valve. The valves of culinary vegetables are of several different kinds, according to the number of divisions, but principally of the univalve and bivalve kinds.

Valverde, of Val Verdes, in Geography. See Lca.

Valverde, a town of Spain, in New Castile; 20 miles S. of Salamanca.

Valverde del Camino, a town of Spain, in the province of Seville; 17 miles N.E. of Moguer.

Valverde de Friesno, a town of Spain, in the province of Leon, on the borders of Portugal; 24 miles N.N.W. of Curia.

Valuki, a town of Ruflia, in the government of Vorone; 108 miles S.S.W. of Voronez. Lat. 50° 2'; E. long. 37° 44'.

Valuntown, a town of the state of Connecticut; 10 miles N.N.E. of Norwich.

Valvula, valve, in Anatomy, a name given to various parts in the body. See Valve.

Valvula Cobi, or Hei, the valve placed at the communication of the large and small interlines. See Intestine.

Valvulae Convolventes, folds of the mucous membrane of the small intestine. See Intestine.

Valvulae Eutachii, Nothius, or Reticulata, a small fold at the entrance of the inferior vena cava into the right auricle. See Heart.

Valvula Magna Cerebri, or Vienosjoni, a part of the brain. See Brain.

Valvula Mitralis, the valve of the left auriculo-ventricular orifice of the heart. See Heart.

Valvula Seminacres, or Sigmoides, valves placed at the entrance of the aorta and pulmonary artery. See Heart.

Valvula Tricuspidales, or Triglachina; the valve of the right auriculo-ventricular opening of the heart. See Heart.

Valvulae Venarum, folds of the internal membrane of the veins, preventing the reflux of the blood. See Heart.

Vama, in Ancient Geography, one of the navigable rivers of India, which discharged itself into the Ganges. Pliny.—Allo, a town of Spain, in Beteria, belonging to the Beteri-Celtici. Ptolemy.

Vamana, in Mythology, a name or title of the Hindoo deity Vishnu. It means a dwarf; and was applied in consequence of an incarnation of Vishnu in this humble form. See next article.

Vamanavatara, one of the ten grand incarnations of Vishnu; called, by way of pre-emience, dasavatara, or the ten deities, to distinguish them from others of the same deity of less importance. As noticed under the article Vishnu, this manifestation was the fifth of the ten; but the first that occurred after the golden or virtuous age of the Hindoos. It was followed by a less virtuous age, in the course of which Mahabeli, a monarch reasonably virtuous, became so elated, that he omitted the essential ceremonies to the gods; and Vishnu, deeming it expedient to check the influence of such an example, resolved to punish the arrogant raja. He, therefore, condescended to become the son of Kalyapa and Aditi; and, as the younger brother of Indra, was incarnated in the person of a wretched Brahman dwarf. (See Indra and Kalyapa.) Appearing before the king, he allotted a boon; which being promised, he demanded as much as he could pace in three leaps. Nor would he deign farther, though urged by Beli to demand something more worthy of the donor.

Mahabeli, it would appear, had referred to some of these precesses; and the boon asked and yielded, was, as usual with mighty rajas, the sovereignty of the universe, which includes the three regions of the earth, heaven, and hell. To avert the effects of the abuse of this power, dangerous even to the gods, and to refuse their sovereignty, Vishnu referred to the artifice we are describing.

On obtaining the king's promise, the dwarf required a ratification of it; which was done, as is still practiced, by pouring water on the hand of the suppliant. This Beli proceeded to do, though warned of the consequences; learning not to ratify that for which his royal word would pledged.

As the water fell into his hand, the dwarf's form expanded till it filled the world; and Vishnu now manifesting himself, deprived Beli at two leaps of heaven and earth; but he being in some points a virtuous monarch, left Patala, or the lower regions, still in his dominion. (See Patala.)

In this character, Vishnu is sometimes called Trivikrama, or Trivikrama, meaning the three-leap-taker. Beli, as king of the infernal regions, seems to correspond with Yama; which see. Sir William Jones deemed this king the same with the Belus of western history. See Belus, and Mahabeli.

Writers of the sect of Vaishnava maintain, that the ratifying stream poured on the hand of Vishnu, was the origin or fountain of the river Ganges, or Ganges; which falling from the hand of the miraculous dwarf, descended thence upon his, now Vishnu's, foot; whence, expanding like its front, it fulfilled a mighty river, and was received on the head of Siva. In pictures and carvings of the latter deity, the goddess Ganga is frequently seen half concealed in the folds of his hair, and Siva is hence named Gangadhara, or Gangasheher: a name assumed also by a class of itinerants who fell that holy water through the streets of all Indian cities; it being among Hindoos equal, in expelling potentiality, to the holy water of papacy. This mythological source of the bleeding and bluffed river is a favourite subject with Hindoo poets.

In the Hindoo Pantheon, whence this article is partly taken, are many legends connected with it.

In pictures of this avatara, the dwarf is usually represented receiving the water from the hand of Beli, through a spouted vessel; sometimes accompanied by the evil counsellor Indra, or Sakra, who is represented either with only one eye, or holding his hand before the other. As the regent of the planet Jupiter, named Vrihaspati, is the counsellor or preceptor to the gods and Suras; so Sakra is the adviser of the demons or Asuras; and is constantly watchful in counteracting the divine beings, and their endeavours for the good of man; and the pious endeavours likewise of holy men. To prevent the conserving power in this avatara from accomplishing the projected end, in the punish-
ment of impiety and arrogance, perfonified in Beli, Sakra apprized him of the deceit under which he was proming the universe away. But as the monarch had too much pride to recant his royal word, the evil counsellor assumed the form of a muquito; and infinuating himself into the spout of the vessel through which the rathing stream was to pafs, arrested its palfage; when the dwarf, taking a straw to clear it, thrust out the eye of the gnat, a defect ever after retained by Sakra in all shapes. It is faid to indicate the half enlightenment of evil counfellors: till, why the one-eyed admirer of ill should be the thousand-eyed god, has not been explained. Nor will it, perhaps, be deemed worth while to enter into any lengthened explanation of the apparently ritious fables mentioned in this article; though we believe they might be explained from a confideration that all Hindoo history, religion, arts, and science, are buried in a mass of mythological legends. We will juft mention, that the fabulous fource of the Ganges, whether from the head of Siva, or from the foot of Viñhna, the latter being the principle of humidity, the former of heat, is merely a physical difpute between what in Europe would be called Neptunists and Vulcanists, but what in India assumes the form of theological controversy. Whether the Ganges be of volcanic origin, or descends from the eternal snows of Nepal, is perhaps the point here disputed between the Saiyas and Vailinivas. (See of this under the articles Saiya and Siva.) As to the muquito, Indra is the god of flowers, regent of the firmament; clofly allied to Viñhna, air being a form of humidity; and the muquito partakes, like Viñhna, of both its forms: it is born, or reproves, like the god, in water, and lives in air. But we shall pursue thefe mythological allegories no farther.

One of the eighteen sacred poemens, called Purana, is named after this avatar, (see Purana,) and details a great mass of poetical incident connected with it. The reader may perhaps smile in hearing that England is the supposed theatre of several of the incarnations of Viñhna, and of this of Vamana among them. On this point, we refer to the second article of the 11th volume of the Asiatic Researches.

VAMBA, in Geography, a river of Angola, which runs into the Coanza, near Cabembo.

VAMIGELA, in Ancient Geography, a town of Africa, in Mauritiana Cafarifia. Ptol.

VAM-KAOSE, in Geography, a small island in the Chi-nefe archipelago, where the celebrated St. F. Xavier was buried; 62 miles S.W. of Macao.

VAMPYRE, in Mythology, a name given to an imaginary demon, which, it is pretended, sucks the blood of perfons during the night, and thereby destroys them. These vampires were suppos’d to animate the bodies of dead perfons, which when dug up were found freth, florid, and full of blood. Those who were killed by vampires were said to become vampires themselves: the way to destroy them was to drive a flake through them, at which time they would give a horrid growl; and to burn the body to ashes. This species of superition occasioned, five years ago, great disturbances in Hungary and other places.

VAMPYRE, in Zoology, the Vesperitli vombrus of Linneas, called also tarnate, and by Buffon la rougette and la rouguette, is a species of bat with large canine teeth, four cutting-teeth above, and the same below; sharp black nose; large naked ears; tongue pointed, and terminated by sharp aculeated papillae; exterior toe detached from the membrane; the claw strong and hooked; five toes on the hind-feet; talons very crooked, strong, and compressed sideways; no tail; the membrane divided behind quite to the rump; varying in colour, some being entirely of a reddish-brown, and others dusky; and also in size, some having the extent from tip to tip of the wings four feet, others five feet four inches; and others extending farther than a man can reach with his extended arms. This animal inhabits Guinea, Madagacar, and all the islands from thence to the remotest in the Indian ocean. They are also found in New Holland, the Friendly Islands, the New Hebrides, and New Caledonia. They fly in flocks, obscuring the air with their numbers; beginning their flight from one neighbouring island to another, immediately on fun-fet, and returning in clouds from the time it is light till fun-rife, and during the day lodging in hollow trees; they live on fruit, and are so fond of the juice of the palm-tree, that they will intoxicate themselves with it till they drop on the ground. In New Caledonia, the natives use their hair in ropes, and in the taffels of their clubs. The Indians eat them, and declare their flesh to be very good. The French who live in the Ile de Bourbon, boil them in their bouillon, to give it a relish. While they are eating, they make a great noise; their smell is rank; and their bite,-refillance, and fiercenes, very great when taken. The ancients had some knowledge of these animals, and M. de Buffon apprehends, that from the account of them the poets formed their fictions of harpies. Linneas calls this species vampyre, conjecturing it to be the kind which draws blood from people in their sleep. The bat is so dexterous a bleeder, as to inculcate its aculeated tongue into the vein without being perceived, and then suck the blood till it is fattened; all the while fanning with its wings, or agitating the air so as to call the sufferer into a still fonder fleap. In certain parts of America they have destroyed all the great cattle introduced there by the multimians. Pennant’s Hift. Quadrupeds, vol. ii. p. 548, &c.

VAMPYRE is also a name given by M. de Buffon to the vesperiltia foedrum of Linneas, or bat with a long nose, large teeth, long, broad, and upright ears; with a long, conic, creft membrane at the end of the nose, bending at the end, and flexible; hair on the body cinereous, and pretty long; wings full of ramified fibres; a membrane extending from one hind leg to the other; no tail; but three tendons extending from the rump, and terminating at the edge of the membrane. This animal inhabits South America, lives in the palm-trees, and grows very fat. Buffon supposes it to be the species that sucks human blood. Pennant. See Andira.

VAN, VANT, or Vaunt, (of the French avant, or avaut, before,) is a term used in composition with several words in our language. As,

VAN-Couriers, are light armed soldiers, sent before armies to beat the road, upon the approach of an enemy.

VAN-Dofts, a ditch dug without the countercarp, and running all along the glacis; usually full of water.

VAN, Vanti, or Vaunt-Corps. See Corps.

VAN, or Van-Guard. See Guard.

VAN-Lay. See Vaunt.

VAN, in Agriculture, a name sometimes used to signify an implement or contrivance for winnowing, or cleaning corn with. See Winnowing Machine.

VAN, in Sea Language, denotes the foremost division of any naval armament, or that part which usually leads the way to battle, or advances first in the order of sailing. See Engagement and Fleet.

VAN, in Mining. To make a van, is to take a handful of the ore or tin-fluff, and bruise, wash, and cleanse it on a thovel; then, by a peculiar motion of the thovel, to shake and throw forth upon the point of it almost all the ore that is freed from wafer. This operation being repeated, the ore
is collected and revered, and from thence they form an
estimate how many tons of copper-ore, or how many hundred
weight of block-tin, may be produced out of one hundred
facks of that rock, of which the van is made. Pryce's

VAN-ARTENILS, in Geography, a city of Armenia, situated
two miles from a lake of the same name. It is surounded with
a good wall and deep ditch, and has four gates. On the N.
and S. are a castle, built on a high and perpendicular hill, which rifes
abruptly from the plain. This fortres can only be ap-
proached by one paffage, so narrow as to admit only two
persons abreast; it is always supplied with corn and military
stores, and in the centre of the work stands the palace of the
ag of the janizaries. This city is abundantly furnished with
water and provisions; the houfes are built of flone and tile;
the streets are spacious and well paved, and the population is
limited to about 50,000 fouls, of which number two-third-
are Turks, and the reft Curds and Armenians. The air is
pure, and the environs of the city delightful. It is four
days' journey from Bayazid, a city of one of the Turkish
princes of Armenia, twelve from Erzeroom, another of
them, five from Betlis, and about the fame distance from
Khoi.

The lake (Arifja of Ptolemy) is about 168 miles in cir-
cumference; and although the water is more sweet than that of
Urumca, it is so brackifh as to be unfit for the common
purpofes of life, according to the common opinion, though
some fay it is very good. There are four iflands in the lake,
on of which is an Armenian monastery, and 300 priets.
The traffic of the furrounding country is carried on by about
20 or 30 small boats. N. lat. 48°. E. long. 43° 55'.
On the N.W. fide of the lake, three days' journey from Van, is
Arguf (the ancient Arzes), containing 6000 inhabitants.
And in a weftern direfion from Arguf is Mohf, the ancient
Mezoene, occupying a small eminence, wahfed by the
Euphrates, over which is a bridge of 15 arches, badly built,
and thinly inhabited, but situated in a country equally fertile and
propitious. The natives of this district, amounting to
about 80,000 fouls, of which 12,000 are Yezedis, are a
bafe and degenerate race. Tobacco and manna are exported
from hence in considerable quantities. Mr. Kinners Mem.
of Perfia.

VAN, a town of Norway, in the province of Aggerhusen;
20 miles N. of Christiania.—Alfo, a river of South Wales,
which runs into the Britifh Channel, about 5 miles below
Cowbridge, in Glamorganshire.

VANAHON, a river of America, which runs into lake
Michigan, N. lat. 42° 53'. W. long. 87° 10'.

VANAMALI, in Mythology, a name of the Hindoo
god Krishna; which fce. This name is faid to be derived
from a pendent garland of flowers, with which this
frolicsome deity is usually decorated. In the following pas-
fafe he contralls his appearance, thus decorated, with that of
Mahefa, or Siva. "I am not the terrible Mahefa: a gar-
land of water lilies, with subtle threads, decks my fould-
ners; not fpernts with twifled folds: the blue petals of the
lotos glitter on my neck; not the azure gleam of poifon:
powdered fandal-wood is fprinkled on my limbs; not pale
afhes." This is addreffed to his enchanting miftrefs Rodba,
under which article a farther extract from the fame "Song"
of the world will be found. The gleam of poifon on his neck alludes
to his having drank the poifon produced by the burning
of the embers, as defcribed in our articles KURMAWATARA
and SITAKAKUNTHA; and being powdered with afhes, is
noticed in the latter part of the article SCETS of Hindos.

VANANCOPAN, in Geography, a town of Hindoo-
flan in the Carnatic; 15 miles S.W. of Trivady.

VAN-BALEN, in Biography. See BALEN.

VANBRUGH, Sir John, a dramatic writer and an
architect, was a defcendant of an ancient family in Chelfhire,
and was firft known to the public as an officer in the army,
being confidered as a man of wit and a pleanfent companion.
The firft play which he firfhed was "The Refpafle", and it was aced with great succefs in 1697. This was
followed, in the fucceeding year, by "The Provoked
Wife", and in the fame year appeared his "Alop,"
blending humour with fadine and ufeful morality. In
1702 appeared his "False Friend!" and he was now
knigh ted, and advanced to the poff of Clarencieux king-
ats. When a theatre was erected in the Haymarket,
it was placed under the management of Vanbrugh and
Congreve by Betterton and the other patentees; and it
was opened in October, 1705, with a comedy by Vanbrugh,
titled "The Confederacy," which, though the ballet
written, is the moft licentious of this author's dramatic pro-
fuctions, belides three more pieces, imitated from the
French; but finding the concern irksome, he difpoled of his
shares. The pantomime of "The Journey to London" was begun by him, but finifhed by Cibber. In
speaking of Vanbrugh, Pope has blended prais with cen-
sure, when he fays,

"How Van wants grace, who never wanted wit."

His taste and talents as an architect were firft exhibited in
the theatre in the Haymarket, for which he obtained sub-
fcriptions; and to him was committed the erection of the
palace of Blenheim, voted by the nation to the duke of
Marlborough. In 1716, king George II. appointed him
surveyor of the buildings at Greenwich-hofpital, comp-
roller-general of the royal works, and surveyor of the gar-
dens and waters. On a visit to France, he employed himself
in taking views of the fortifications in that kingdom, which
caufed him to be apprehended and committed to the Bafile;
but when he was obferved to amufe himfelf in prifon by
making fketches of comedies, he was liberated, as a harm-
less perfon, without any application from home in his favour.
As an architect, he was engaged to build several great
houfes in England, besides Blenheim; but in this capacity
he has unfortunately been tranmitted to potterfry rather as an
object of ridicule than of admiration. Mr. Walpole has
passed upon him a fevere cenfure, when he fays that "he
wanted all ideas of proportion, convenience, and propriety.
He undertook vast designs, and compofed heaps of little-
nefs. The style of no age, no country, appears in his
works; he broke through all rule, and compefaated for it
by no imagination. He seems to have hollowed quaries
rather than to have built houfes; and should his edifces, as
they seem formed to do, outlaid all record, what architec-
ture will potterfry think was that of their ancestors?" The
following epigrammatic epitaph was written for Vanbrugh
by Dr. Evans, and accords with the above character of his
works:

"Lie heavy on him earth, for he
Laid many a heavy load on thee."
one "who was a man of wit and of honour." He died of a queney, at his house in Whitehall, in the year 1726.


VAN CAMPENS, in Geography, a town of the state of New Jersey; 32 miles N.W. of Morristown.

VAN-CHOU, an island in the East Indian sea. N. lat. 18° 50'. E. long. 110° 40'.

VANCOUVER's Fort, a fort of Kentucky, at the union of the two branches of Sandy river.

VANDALANDA, in Ancient Geography, a country of Asia, in Sogdiana, between mounts Caucasus and Imaus.

Ptolomy.

VANDAL, ANTONY, in Biography, was born in Holland in 1638, and though he manifested an inclination for study in his youth, his parents placed him in the department of commerce. At the age of 30, however, he refuted his literary pursuits, and graduated as a physician; and he was also for some time a preacher among the Mennonites. His attachment to study prevailed at length over every other occupation, and his literary character was established by many valuable works. Of these the most noted was "Differtationes de Oraculis Ethniciorum," first printed in 1683, 12 mo., and afterwards in 1700, 4to. His opinion was, that the heathen oracles were mere impostures, and that they did not cease at the coming of Christ; which at the time was a bold assertion, as it contradicted the sentiments of some of the fathers. Fontenelle abridged these dissertations in his "Histoire des Oracles." (See the article Oracle.) In 1696 he published a work, "On the Origin and Progress of Idolatry," which contained "A Dissertation on true and false Prophecy;" "A Dissertation on the Narrative of Arifenas on the Seventy Interpreters;" "The History of Baptisms, Jewish and Christian;" "A Dissertation on Sanchoniatho;" and "Dissertations on ancient Marbles." Some of these have been published separately. In all his writings, Vandal manifested solid erudition, united with facility and a spirit of free inquiry; but he was a methodist, and his style is obscure. He was allowed, even by those who differed from him in opinion, to be a man of great probity, of an agreeable disposition, and entertaining conversation. His lot was that, which has not been uncommon with persons of literature, namely, indigence; for he sold his books before his death, which happened at Haarlem in 1708. Morel. Le Clerc.

VANDALS, in Ancient Geography, a people of no very high antiquity, who were originally a Gothic nation. (See Goths.) Pliny and Procopius concur in this account of their origin; and the latter writer, more especially, affirms in express terms, that the Goths and Vandals, though distinguished by name, were the same people, agreeing in their manners, and speaking the same language. They were called Vandals, from the Gothic word "Vandeln," which signifies to "wander," because they often changed their situation, migrating from one country to another. They are supposed to have come originally out of Scandinavia, with the other Goths, under the command of king Erich, and to have settled in the countries now known by the names of Mecklenburg and Brandenburg. When Berig, king of the Goths, several ages afterwards, brought with him a colony of Goths from Scandinavia, and settled in Pomerania, he subdued the Vandals, who inhabited those countries, and incorporated them with the new settlers. In the reign of Augulfus, one of the Vandals, beingbrightained in their own country for want of room, took up their abode on the banks of the Rhine; but were driven from thence by Tiberius and Dufus, and compelled to return home. Their country being overflowed with inhabitants, they soon afterwards pursued an eastern route, and driving out the Scavi, who occupied the territory that lay between the Bosphorus Cimmerius and the Tanais, and taking possession of their country, assumed the appellation of the ancient inhabitants. Some of them, several ages after, in the reign of Mauritius, which began in 586, settled in Dalmatia and Illyricum, to which they gave the name of Schalonia; and others migrated to the eastern parts of Dacia beyond the Danube, a province which comprehended the countries now denominated Transylvania, Moldavia, Wallachia, and the eastern parts of Upper Hungary. From those who remained in Germany, their ancient Poles and Bohemians, they supposed to have derived their origin; but the Vandals, who, under Godgerulf, their king, entered Gaul, and afterwards settled in Spain and Africa, came, as Procopius says, from Dacia and the vicinity of the Palus Moritis. As the Vandals were a Gothic nation, they retained the customs, manners, religion, and form of government, that subsisted among the Goths. The first of their kings mentioned in history is Godgerulfus, under whose command they entered Gaul in 406. He was succeeded by Gunerich, who passed, in 409, from Gaul into Spain, and settled in Galicia. His successor, Generich, abandoned Spain in 428, and passed with his valets into Africa, which the Vandals possessed till the year 533; when, under Gelimer, an end was put to their dominion by Belisarius, and Africa was reunited to the empire. Although the Vandals are said to have been inferior in power and courage to all the other barbarous nations, they nevertheles made themselves masters of the most fertile provinces of the empire. They became protelytes to Christiandom at the same time with the Goths, embracing the sentiments of Arius, in common with the other Goths, and becoming irreconcilable enemies to the Catholic church. Salvianus extols their continence and chasity.

It was about the year 1667 that they began to be troublesome to the Romans, in the reign of M. Aurelius and Lucius Verus; when forming an alliance with other barbarous nations, they invaded the empire, plundered several cities, and, having put to flight the Roman armies, committed every where unparalleled ravages. Having taken possession of Pannonia, they retained it till they were expelled in the year 170, by M. Aurelius. They afterwards entered into an alliance with the Romans; and in 180, it was one of the articles of peace concluded between the emperor Commodus and the Aleman, that they should not make war upon the Vandals. In the second year of Aurelian's reign, A.D. 271, the Vandals passed the Danube, laying waste the neighbouring provinces; but Aurelian compelled them to retire with great precipitation, and having overtaken them in their retreat, obliged them to sue for peace; which was granted, on condition of their delivering, as hostages, the sons of their two kings, and other persons of distinction. Two thousand of their best men were incorporated among Aurelian's own troops. After his death, they entered Gaul; but they were defeated by Probus in several battles, and obliged to withdraw themselves at the approach of the Roman army. Refitting the infinits of the Roman soldiery, they made an attempt to recross the Rhine, but sustained a great defeat; and proving unfaithful to their engagements, after having obtained peace, Probus marched against them, put many to the sword, took a great number of prisoners, among whom was their king, and afterwards sent them into Britain, where they were fupposed to have settled in the neighbourhood of Cambridge, giving name, as it has been said, to the village of Vandalburg. Probus allowed several of them to settle in Thrace, which was almost depopulated.
The next mention of the Vandals that occurs is in the eighth year of the reign of Diocletian, when they engaged in a war with the Goths. About the year 406, or the twelfth of Honorius's reign, they made an irruption into Gaul; but in attempting to cross the Rhine, they were slaughtered by the Franks; and being relieved by the Alans and Suevians, they obliged the Franks to retire, and actually entered Gaul. Having passed through Germania Prima and Gallia Belgica, they took possession of Aquitain, the most fertile and opulent province of Gaul; and advancing as far as the Pyrenean mountains, they ravaged all the neighbouring provinces. Conflantine, however, having been proclaimed emperor by the British legions, passed from Britain into Gaul with a powerful army, and defeated the Vandals and other barbarians in several battles, and at length granted them peace, without ripulating as a condition their leaving the country. The Vandals soon afterwards took up arms, and besieged several cities of Gaul, under Maximus, who assumed the honour of being emperor, in opposition to Conflans, the son of Conflantine. Finding themselves more vigorously opposed than they expected, they marched towards Spain, which was then in a distracted state, and in the year 409 entered the country; and before the end of the year, Conflans, obliging Conflantine to abandon it. After having reduced the province of Spain to a deplorable condition, they conjoined with the Alans and Suevians in dividing the country between them, and devoted themselves to the operations of agriculture. In this partition, Galicia fell to the share of the Vandals and Suevians, and Britain to those Vandals that were called Silingtians, who were supposed to have given to their portion the name of Vandalusia, afterwards changed into Andalufsia. In the year 416, Vallia, king of the Goths in Gaul, having made peace with the Romans, undertook to drive the barbarians out of Spain; and in 422, Honorius, having heard of the reduced condition of the Vandals in Spain, in consequence of the conduct of Vallia, determined to recover the provinces which they possessed. But his attempts for this purpose were rendered ineffectual by a signal defeat. In consequence of this victory, the Vandals became powerful, established themselves in Andalufsia, almost destroyed the city of Cartaghesia, and extended their ravages to the Balearic islands. In the year 428 or 429, Generic, the king of the Vandals, assembled them together, with their wives, children, and effects, and abandoning Spain, crossed the straits of Gibraltar, and landed in Africa. After their arrival, they gained several victories over the Romans, and overran the country, that Cirta and Cartaghes were the only two strong places in Africa possessed by the Romans. At length, viz. A.D. 435, a peace was concluded between Valentinian and Generic; but though the moderation of the Vandal sovereign was highly extolled, he neitherfeels feized Carthage, A.D. 439, whilst the Romans were engaged in a war with the Goths in Gaul; and thus the Vandals remained masters of the proconfulon province of Byzacene, Getulia, and part of Numidia. The capture of Carthage created an alarm in Italy; and preparations were vigorously made for putting Rome in a state of defence, and for inducing all ranks of people to take up arms for the preservation of the country. In the year 435, Generic took and plundered Rome; and carried over with him into Africa the empress Eudokia, and her son, the Emperor Honorius, leaving them till the year 462, marrying Eudokia to Hunneric, his eldest son, who had by her Hilderic, afterwards king of the Vandals in Africa. Upon his return to Africa, Generic subdued the countries that were still in the hands of the Romans. The emperor Majorianus, being disappointed in his views and plans for the conquest of Africa, concluded a peace with Generic, who, after the death of the emperor in 461, sent a powerful fleet to pillow the coasts of Sicily and Italy, and even made himself master of Sardinia. He afterwards took occasion to ravage Peloponnese and the Greek islands, whence were carried off many captives. Leo reenforced the afront offered by Generic to the eastern empire, and prepared for revenge by carrying the war into Africa. In the progress of his powerful armament, Sar- dina and Tripoli were recovered from the Vandals; but whilst Generic solicited of the Roman admiral a truce of five days for settling the terms of his submission to Leo, he contrived to destroy the whole Roman fleet that was armed against him. In the year 475, he concluded a peace with Zeno, the successor of Leo, who, renouncing all claim to the provinces of Africa, yielded them for ever to Generic and his descendants. Soon after this event, Generic died, A.D. 477; but the peace was religiously observed by his successor, till the reign of Justinian, who, espousing the cause of Hilderic against his brother Glimmer, who had usurped the crown, drove the Vandals out of Africa, and reunited those provinces to the empire. (See Belisarius.) Africa had been their empire, it now became their prison; nor could they entertain a hope, or even a wish, of returning to the banks of the Elbe, where their brethren, of a spirit less adventurous, still wandered in their native forests. In the country between the Elbe and the Oder, several populous villages of Lusatia are inhabited by the Vandals: they still preserve their language, their customs, and the purity of their blood; support, with some impatience, the Saxax or Prussian yoke; and fuse with secret and voluntary allegiance the descendant of their ancient kings, who, in his garb and present fortune is confounded with the meanness of his vassals. The name and situation of this unhappy people might indicate their descent from one common stock with the conquerors of Africa; but the use of a Slavonian dialect more clearly represents them as the last remnant of the new colonies, who succeeded to the genuine Vandals, already scattered or destroyed in the age of Pro- copius. Anc. Un. Hist. vol. xvii. Gibbon's Hist. Rom. Emp. vol. i. vii.

VANDELEYVILLE, in Geography, a town of France, in the department of the Meurte; 9 miles N.W. of Mirecourt.

VANDELLIA, in Botany, was so called by Linnaeus, at the suggestion of Browne, after his correspondent Dr. Dominick Vandelli, who published at Padua, in 1764, a quarto volume in Latin, on the hot-baths of that neighbourhood, with notices of some cryptogamical plants inhabiting therein. Being afterwards appointed superni- tendant of the royal botanic garden at Lisbon, he published there, in 1771, a small Flustrum Plantarum, dedicated to Sir Joseph Banks, describing some tuppofed new genera, and several new species, with a few figures. Dr. Vandelli is also the author of one or two zoological tracts; and he wrote against Haller's doctrine of the insufficiency of the tendons and membranes, to the great displeasure of that illustrious physiologist. This veteran in botanic science visited London, in 1815, at a very advanced age, and, if we mistake not, is since dead.—Linn. Mant. 12. Schreb. Gen. 419. Willd. Sp. Pl. v. 3. 343. Mart. Mill. Dict. v. 4. Julii. 122. Lamarck Hirtt. t. 352. (Matonius; 641. Jul. 119.—Clas and order. Phy- domania Angiospermae. Nat. Ord. Perennes. Linn. Scopu- larie. Julii.

Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, in four deep, awl-shaped, equal segments, the uppermost sometimes divided, permanent. Car. of one petal, ringless; tube as long as the calyx; limb small; 3 stamens on the culture;
entire; lower dilated, two-lobed. *Stam. Filaments four; two from the disk of the lower lip, curved upwards; two from the throat, higher up; anthers ovate, connected in pairs. Pet. German oblong; style thread-shaped, the length of the filaments; stigmas two, ovate, membranous, reflexed. *Peric. Capule oblong, of one cell. Seeds numerous.


2. *V. pratensis. Oblong-leaved Vandelilia. "Vahl Eclog. v. 2. 48." Wildl. n. 2. (Matourca pratensis; Aubl. Guian. 632. t. 259. Luteicava, five Scoparia; Pit. Braf. 246.)—Leaves ftalked, elliptic-oblong, acute, finely downy on both fides.—Native of moift ground in Cayenne; about the borders of meadows near the town, flowering almost all the year. It is known by the name of Wild Bafli (*Bafli ficawage), and esteemed a good vfforlery. The flems are feveral, erect, two feet high, leafy, fquare, forked. Young branches, as well as the leaves, soft to the touch, clothed with fine fturbulence. Flowers blueith, axillary, motifly foliary. They are delineated in Aublet's figure as having the upper lip in two lobes, the lower in three, which does not agree with the Linnaean generic description, copied above from the *Montifia. Yet the other characters, and the habits of the plants, anfwer fo well, that we are perfuaded they mutt, as Schreber fupffected, belong to one genus. This opinion is confirmed by Vahl, who mentions this fecond species as of very frequent occurrence, by the road-fides in South America, from Trinidad to Brazil. The root is annual. The fame learned botanift had, no more than ourselves, any opportunity of examining the rare *Vandelitia diffusa alive, nor does it appear whence Linnaeus took his defcription; except possibly from two or three very in-complete dried ftimens, which are now scarcely fufficient to affift in forming an opinion on the fubjeft.

VANDEPUT. Cape, in Geography, a cape on the west coast of North America, and caft point of Prince Frederick's found. N. lat. 57° 5'. E. long. 22° 12'.

VANDER-CABEL, in Biography. See Cabel.
VANDER-DOES. See Does.
VANDER-HELST. See Helst.
VANDER-HEYDEN. See Heyden.
VANDER-MEER. See Meir.
VANDER-MEULEN. See Meulen.
VANDER-NEER. See Neer.
VANDERWERF, ADRIAN. This ingenious painter was born at Ambacht, near Rotterdam, in 1659, and received the principal part of his education under Eglon Vander Neer. At the age of 18, he left that matter, and becoming acquainted with M. Fluiik, who polifhed an ex- tensive collection of drawings by Italian masters, to which he had constant access, he, by this aid, and also by drawing after fads from antique figures, formed a fyle of defign much more elevated and pure than that of his countryman and contemporaries.

At about the age of 37, his works attracted the notice of the elector palatine, on his visit into Holland; and he commissioned him to paint for him a picture of the Judgment of Solomon, and also his own portrait, to be preffented to the Florentine gallery of artifics; and he invited him to bring the pictures to Duffeldorff. The following year he effected that object, and the elector was defirous of retaining him in his service; but to this Vanderwerf would not con- sent, but engaged to devote to him fix months of the year, for which he received a liberal pension. In confequence, the gallery of Duffeldorff is the theatre of Vanderwerf's glory, and his pictures are numerous; but they are not very uncommon in this country. The charater of them is given by fir Joshua Reynolds, who, in his critical tour into the Netherlands, says, "they (the pictures by Vanderwerf at Duffeldorff) are twenty-four in number in one room, three of them as large as life; a Magdalen, whole length, and two portraits. His pictures, whether great or small, certainly afford but little pleafure; one of the principal caufes appears to me, to be his having entertained an opinion that the light of his picture ought to be thrown fequently on the figures, and little or none on the ground or sky. This gives great coldnefs to the effect, and is fo contrary to nature, and the practice of thofe by whom works he was furrounded, that we cannot help wondering how he fell into the fllow. His naked figures appear to be of a fubfance much harder than flefh, though his outline is far from cutting, or the light not united with the fhafe, which are the molt common caufes of hardnefs; but it appears to me, that, in the prefent infance, the hardnes of manner proceeds from the foftenfs and union being too general; the light being every where equally loft in the ground, or its fllow, and thus producing the appearance of ivory or plaftier, or fome other hard fubfance." There is also a want of tranparence in his colouring, and he has con- stantly the deficf of Rembrandt, that of making his light only a fingle fpot. However, to do him justice, his figures and his heads are generally well drawn, and his drapery is excellent. He died in 1727, aged 68.

He had a brother, Peter Vanderwerf, who copied his pictures, and imitated his manner. Though he occasionally painted history, yet his pictures more frequently represent domeftic fcenes; which, though not equal to his brother's, are very highly wrought, and have fometimes been miftaken for his. Peter died in 1718, aged 53.

VANDEVELDE, ADRIAN. This excellent painter was born at Amsterdam in 1659. He difcovered, whilst he was yet at school, a decided difpofition for paintings, and covered the walls of his father's houfe with fcetches of all kinds of animals, drawn with an intelligence very unequal at that early period of life, and which induced his father to place him under the tuition of J. Wynants, where he made a very extraordinary degree of progres. Wynants taught him the practice of drawing from nature, and studying in the open air. It was his constant cuftom to pafs his days in the fields, defigning every thing effential to his perfuits; and in this mode, infinitely more variety may be obtained than the moft inventive genius can supply without it. Besides this useful mode of study, he alfo applied himfelf to draw from the human figure, and obtained a confiderable degree of excellence. In this refpeét he very far fuperfaced his matter, who afterwards conftantly employed him, as he had previously done Wouvermans and Lingleback, to decorate his landscapes with figures and animals; as alfo did Hackaert, Hobbima, Vander-Heyden, and others, thus giving an additional interef to their admirable performances.

The fcenes which Adrian Vandevelde chofe for the exercise of his art are in general very confined, and feldom above the ordinary appearance of common nature; but they are
are rendered with so much purity of colour, and fullness and perfection of execution, that they captivate, notwithstanding their simplicity. His animals, which are generally the subjects of his pictures, are designed with correctness, and have a life and air of motion which is to be found in those of any other marine painter. His vessels are correctly drawn, and the sails, the rigging, finished with a delicacy perfectly astonishing, and with unexampled freedom. No one ever surpassed the purity and truth of his tints: whether he represent the serenity of the calm, or the majestic obscurity of the storm, an undeviating correctness and fulness adorn his canvas, and render his works precious in the eyes of all beholders. He died in 1707, at the age of 74.

**VAN-DIEMEN's LAND, in Geography. See Diemen's Land.**

**VAN-DIEMEN's Road, an anchoring place in the South Pacific ocean, on the coast of Tongataboo, one of the Friendly islands. S. lat. 21° 34'. E. long. 157° 4'.**

**VAN-DIEST, in Biography. See DIEST.**

**VANDORF, in Geography, a town of Germany, in the county of Henneberg, on the Werra; 6 miles E.S.E. of Meiningen.**

**VANDOSIA, in ethnology, a name by which some authors have called the lewicicus, the common dace.**

**VANDSHELLING ISLANDS, in Geography, a cluster of small islands in a bay of the Pacific ocean, on the north coast of New Guinea. S. lat. 3° 32'. E. long. 136° 15'.**

**VANDSIA, a town of Norway, in the province of Christianfand; 43 miles W. of Christianfand.**

**VANDUARA, in Ancient Geography, a town of Britain, belonging to the Dammi; which being considerably to the north-west of Colonisa, was most probably at or near Paifley, where Mr. Horsey places it.**

**VANDY, in Geography, a town of France, in the department of the Ardeches; 3 miles N. of Vouziers.**

**VANDYCK, Sir Anthony, in Biography.** This most justly admired painter was born at Antwerp in 1599, and, according to Houbraken, was the son of a painter on glass, who first instructed him in the elements of the art of painting, but afterwards intrusted him for further tuition to the care of Henry Van-Balen, a painter of considerable reputation. He had made a rapid progress under that master, when the increasing fame of Rubens, and the beauty of his works, inspired him with a desire of becoming a disciple of so able an instructor; and his wishes were soon crowned with succés. Rubens soon beheld with pleasure the value of the talents brought by Vandyck into his school, and found in him an able and useful assistant in forwarding his larger works from the sketches he himself had prepared; and it was not long ere an incident established Vandyck's superiority above his fellow pupils, and rendered him at once an object of interest and of envy. Whilst Rubens was employed upon his renowned picture of the Defeat from the Crofs, his pupils were anxious to see it in its progress, and procured admission to his study during their master's absence. One of them, in the wantonness of youth, pushed Diepenbeck, and he fell against the picture, and effaced an essential part of it, on the face of the Virgin, and the arm of the Mary Magdalen, which Rubens had just been painting. Confutation and alarm filled every one present; and to prevent, if possible, the discovery of the accident, John Van-Hoec proposed that Vandyck should endeavour to reform the picture to the state in which they found it. He did so; and the next morning, when Rubens came into his room, on regarding the picture, he is said to have remarked, "there is a hand and an arm which are by no means the word of what I did yesterday;" and though afterwards

**VOL. XXXVI.**

4 F
VANDYCK.

afterwards he might have disovered the mischief, he did not change the painting.

It has been affected by D’Argenville and others, that this circumstance, and the growing ability of Vandyck, alarmed the jealousy of Rubens, and that, in consequence of it, he advised his pupil to renounce historical painting, and adhere to portraiture. But this calumny must be regarded as refuted, by the mere consideration of Rubens having advised Vandyck to go to Italy, where he himself had reaped so much benefit, and where history would be the more sure to rivet the attention of a student. Had he, however, advised him to adhere to portrait painting, it is but a farther proof of his clear perception of the native turn of mind of Van
dyck, and a liberal hint how to employ his talents to most advantage, not originating in the mean passion to which it has been ascribed, but in judgment and good-will. That they did not separate upon unfriendly terms is evident, by Vandyck acting upon his advice, as to going to Italy; and presenting his master, previous to his departure, with two historical pictures, and a portrait of his second wife Helen Forman; and receiving from Rubens in return a present of one of his finest horses.

In 1619, when he was 20 years old, Vandyck left his native city for a residence in Italy, and first visited that emporium of colour, Venice, where he copied and studied with great attention, and imbibed the real spirit, of the works of Titian. At Petworh, the seat of the earl of Egremont, are two portraits of Sir James and lady Shirley (who was a Perian lady,) in Persian costume, which ex
hibit, in the freedom and fulness of colour with which they are painted, the perfect understanding he had of the style of that great Venetian master. From Venice he went to Genoa, where his power was recognised, and his pencil em
ployed, by the principal nobility in their portraits, as well as by several churches and convents, for which he painted historical pictures; and nothing is more astonishing in the history of the art, than the rapidity and facility with which so great a number of works was produced by this extra
ordinary artist. He is reported to have hung up in his studio, on his return from Italy, forty copies made by himself from pictures by Titian, though he was much engaged in original works during his residence there. After some stay at Genoa, he went to Rome, and was there introduced to that patron of elegant literature, the cardinal Bentivoglio, who had been nuncio from the pope in Flanders, and to whom, of course, his talents must have been already known. From this celebrated character he painted that prince of portraits, which for several years was an ornament of the gallery of the Louvre, but now is returned to its original situation, the museum at Florence. Nothing in painting has ever surpassed the life and vigour of the head in this surprizing and agreeable picture. He painted some historical subjects for the cardinal, and also several portraits of distingushed persons; but not uniting with his countrymen, then at Rome, in the Bentvogel society, they rendered his residence there unpleasant to him, and he returned to Genoa, where he was cared for and honoured, and met with constant employment. Whilst there, he was invited to Palermo, to paint the portrait of Philibert, prince of Savoy, the viceroy of Sicily, and was engaged in several commissions for the court; but the plague breaking out, obliged him to leave that place, and he soon after returned to Flanders.

The reputation of his growing talents had led his country
men to an anxious desire of witnessing his power, and several religious communities advanced to employ his pencil. His first public work was his celebrated picture painted for the church of the Augustines at Antwerp. For a time it adored the walls of the Louvre, but is now restored to the church whence it was taken. The subject is St. Augustine in Ecstasy, supported by angels, with other fants; of which there is a print by De Jode. Of this performance, which procured him great reputation, Rubens was one of the most zealous admirers; but Sir Joshua Reynolds observes, "that in some measure it disappointed his expectation: that it has no effect from the want of a large mass of light." In order to judge better of historical subjects, it must be observed, that as it was originally painted by Vandyck, St. Augustine was drest in white, and with the two angels that support him, formed a principal mass of light; but that the monks insiled upon their patron being drest in black, and would not pay for the picture till it was so done.

Commisions now came fast upon him, and most of the principal public edifices of Antwerp, Brussells, Ghent, and Mechlin, were embellished with the productions of his pencil. About this time he painted that beautiful series of small portraits of the eminent artists of his time, which, for character, for variety, and exquisite execution, remain unequalled. Several of them he etched himself, and the rest have been engraved by the best engravers of that day. One of his most excellent historical productions was painted for the church of the Recollets at Mechlin, which also paid a visit to the Louvre, but was returned with the rest of the spoil from Flanders. Its subjeet is the Crucifixion, and Sir Joshua says of it, that, "upon the whole, it may be considered as the finest of Vandyck’s works, and establishes his fame to the title of an historical painter."

The taste and ability thus displayed by this great artist did not influe him from till treatment by his contemporaries, by whom he was accused of tameness and inutility; and in addition to this, he endured a great mortification from the canons of the collegiate church at Courtray, for whom he painted the Elevation of the Cross, befoeing upon it all the power of his art. The picture being completed, it was sent to the place of its denomination, when, instead of receiving the due meed of praise for its extraordinary merit, it was pronounced by the chapter to be a detestable performance, and they treated the author of it as a miserable artist; and with difficulty he could procure payment for his picture. It was not till the picture had been seen and commended by several artists and connoisseurs, that they became sensible of their error; and then, to atone for such foolish and inoffensive conduct, they resolved to commiss him to paint two more pictures for their church; but Vandyck, with becoming indignation, refused to waive his talents upon men fo unworthy of regard, and fo little capable to judge of works of art.

Soon after this, he accepted an invitation from Frederic, prince of Orange, to visit the Hague; and there he painted the portrait of that prince, and those of his family, with many of the principal personages of the court.

The patronage which it was understood to be found at the English court, where Charles I. then reigned, induced Vandyck to visit England in 1629, when he lodged with his friend Geldorp, the painter; but had not the good fortune to attract the notice of his majesty. Disappointed, he returned to Antwerp, with intent to pass the remainder of his life there, when a portrait of Sir Kenelm Digby, which he had painted, was shewn to Charles, and he immediately gave orders for an invitation being sent to the painter to return; and accordingly in 1631 he did so, and was most graciously received by the king.

On this second arrival, he was lodged at Blackfriars, at the king’s expence; and his majesty was so much delighted with his performances, that he often went by water to visit
visit him, and see him paint; frequently fitting to him for his portrait, having others of his wife and children; and on the 5th July, 1632, conferred upon him the honour of knighthood. Afterwards granted him an annuity of 200£, a-year for his life.

Popularity and occupation now flowed in full tide upon him, and the rapidity of even his pencil could scarcely keep pace with the commissions he received, for portraits especially. There are few houses of the old nobility of the country wherein there are not to be found some pictures by Van Dyck. In the king's palaces, the portraits of Charles and his queen and family are numerous. One of a very fine quality adorns the Louvre. At lord Digby's in Warwickshire, is a great number of his portraits. At Petworth, besides the two pictures mentioned above, painted at Venice, are eleven portraits by him, all of the Percy family, or their immediate friends. At Warwick Castle is the like number; and in each are works of the first-rate quality. At Wilton, the grandest of his pictures painted here adorns a magnificent apartment; it is of Willicum, earl of Pembroke, and his family. The style in which it is executed is large and grand, and of a much higher quality than his later productions exhibit, which, in comparison, have only delicacy to compete with the boldness and breadth of this. There are here also many others of his hand; but it would be an almost endless and a needless task to enumerate the pictures which he painted during the sixteen years he resided here, the greater part of which comprehended those of a large size. The prices he was paid confined them to the higher classes, and for them only he wrought. For a half length he had 40£, and for a whole length 60£. This, which at that time was a large sum, and the facility of his execution, together with his pension, enabled him to indulge a natural taste for splendour and luxury. He kept a splendid table, and often detained those who sat to him to dinner, both for society, and the opportunity of studying their countenances, and for touching their pictures after dinner. He was, however, indefatigable, as appears from the number of his works, which, though he died so young, are scarcely surpassed in number by those of Rubens. His practice was peculiar. Sir Peter Lely told Mrs. Beale, that Laniere the painter assur'd him, that he had fast seven entire days, morning and evening, to Van Dyck, for his portrait; and that he would not let him look at the picture, till he was himself satisfied with it. He was addicted to pleasure, was fond of music, and treated musicians with liberality; was a generous patron of all ingenious men, and painted the portraits of many gratuitously. But he paid dear for his indulgence; his luxurious and sedentary life brought on the gout, and hurt his fortune; and he unwisely could not, like his master, resist the temptation of the time, the pursuit of the philosopher's stone; in which perhaps, as Mr. Walpole says, he might have been encouraged by his friend sir Kenelm Digby. Towards the close of his life, the king bestowed on him the daughter of the unfortunate lord Gwyry (Maria Rutten) for a wife; with whom he acquired only honour and beauty, and by whom he left one daughter, afterwards married to Mr. Stepney, who was an officer of the horse-guards on the re-establishment of the royal family.

Soon after his marriage he revisited his native city, and from thence went to Paris, hoping to be employed in the decoration of the gallery of the Louvre; but was disappointed, in finding the commissioms given to Poussin, who had been brought from Rome expressly for this purpose. Van Dyck then returned to England, and still enmity of his great master's known, was ambitious of being employed upon some great national work; and proposed to the king, by sir K. Digby, to paint the walls of the banqueting-house (of which the ceiling had already been adorned by Rubens) with the history and procession of the order of the Garter, for which he asked 8000£; a proposal far more agreeable to the taste than to the purse of the king; and if it had been accepted, two events which soon after occurred, would have totally prevented its completion, viz. the double triumph of death over the patron and the artist. The former indeed lived some years after the decease of the latter; but his political demise followed shortly upon that event, which occurred on the 9th December 1641, when he had only attained the age of 42.

Though Van Dyck produced many valuable works, as we have seen, in historical painting, yet it by no means appears to have been his forte; as he seldom exhibited much expression, but a tame sweetness of effect reigns in them. It is doubtless in portraiture that he stands most decidedly conspicuous, and he may be placed at least alongside of Titian: for if the palm of superiority be given to the latter for his heads, the former must have equal praisr for every other part of his pictures, and particularly for the ordonnance of the whole. His better compositions are conspicuous for their unity and propriety; but his great quality is his perfect understanding of the nature of all the parts, the head, the hands, drapery, skies, &c. and the delightful union of tone and beauty of execution, which he never failed to give. In identity of character he was not often conspicuous: perhaps the cardinal Bentivoglio is the most perfect exemplar; but sir Joshua Reynolds has superadded that invaluable quality to all that he might have acquired from the works of Van Dyck or of Titian.

Van Dyck, Philip, known by the name of the little Van Dyck, was born at Amsterdam in 1618, of a different family to that of sir Anthony, and was a disciple of Boonen, under whose tuition he remained till he had become almost capable of teaching his instructor. He painted small portraits, and from them obtained his cognomen; but was more successfully employed in painting conversation pieces, ladies at their toilets, gay assemblies, &c. which he composed and painted ingeniously. He died at the Hague in 1752.

VanDyke's Islands, in Geography, two islands, Great and Little, in the West Indies, situated to the north-west of Tortola.

VANE, Sir Henry, in Biography, a person of peculiar talents and disposition, who exhibited a conspicuous character during the period of the English Commonwealth, was the eldest son of sir Henry Vane, of Hadlow in Kent, and Raby Castle in Durham, secretary and treasurer of the household to Charles I. He was born about the year 1612, educated at Westminster school, and at the age of sixteen admitted as a gentleman-commoner at Magdalen college, Oxford. Here he remained for some time without matriculation, of which he disapproved; and having visited France and Geneva, he returned with an avowed disaffection to the liturgy and government of the English church, which no efforts of bishop Laud were sufficient to overcome, although he was employed by the king for this purpose. In the year 1634 he joined a number of persons, who being made unhappy by the measures that were pursued at home, emigrated to New England; and being favourably received in that colony on account of his rank and talents, he was soon appointed governor of the province of Massachusetts. Here he invented an odium by his patronage of Antinomianism; and having taken an active part in diluting those sentiments with regard to religion that occasioned conspicuous and injurious to the colony, he was excluded from his high office,
and in consequence of this degradation, he returned privately to England in the year 1639.

VANE.

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experience having taught him wisdom, and having produced a change in his principles and temper, he married a lady of good family, and occupied the place of joint-treasurer of the navy with Sir William Ruffell. Devoting himself to business, he was chosen representative for Hull in the parliament of April 1640, and the subsequent Long parliament. He was also so much in favour with the royal party, that he was knighted by the king. His public conduct seems at this time to have justified the character given of him by Lord Clarendon, who says, "he was a man of extraordinary parts, a pleasant wit, a great understanding, which perced into and difcerned the purposes of other men with wonderful sagacity, whilst he had himself vulturn clauflum, that no man could make a guess of what he intended. He was of a temper not to be moved, and of rare dilimination, and could comply when it was not reasonable to contradict, without losing ground by the concession."

A crisis, however, was approaching, which required his taking a decided part; and accordingly he enlisted with those who were adverse to the court. On occasion of the trial of Lord Strafford, he produced from his father's papers evidence against him, which served in no small degree to produce his condemnation. He also carried up to the lords, the articles of archbishop Laud's impeachment. In 1643, he was nominated one of the Assembly of Divines for the settling of church government; and he was appointed in the same year one of the parliamentary commissioners for negotiating a treaty with the Scotch. His perfusion induced the signature at Edinburgh of the Solemn League and Covenant; and in accomplishing this object, he overreached the Presbyterians of that country by an article which established the exiling form of religion in Scotland, but left ambiguous the nature of the reform in the two other countries. About this time he became sole treasurer of the navy, but without any view to his own emolument: for he gave up his own patent for life from the king, and for an agent whom he substituted in his own place, he obtained a salary of 2000l. per annum, the residue being brought to the public account. Of his religious principles and character, who were lord Clarendon favors in the following terms: "Vane was a man not to be described by any character of religion, in which he had swallowed some of the fancies and extravagancies of every sect or faction; and was become (which cannot be expressed by any other language than was peculiar to that time) a man above ordinances, unlimited or unrestrained by any rules or bounds preferred to other men, by reason of his perfection. He was a perfect enthusiast, and without doubt did believe himself inspired, which so far corrupted his reason and understanding, that he did at some time believe he was the perfon deputed to reign over the fants upon earth for 1000 years." In connection with the party denounced Independents he opposed terms of peace, when he acted as one of the parliament's commissioners at the treaty of Uxbridge in 1645; and when he negotiated in the Isle of Wight in 1648. Although he had from artifice or feeling no concern in the king's death, he was one of the council of state invested with supreme power after that event. He was a steady adherent to the republican government, under which he occupied an important station; and in 1649 he was one of the commissioners sent into Scotland for introducing the English government there, and for effects an union between the two countries.

On this occasion he is represented by Burnet as having fomented the division prevailing between two parties in the kirk, and as having discouraged all attempts to unite them, with a view of maintaining over them more Catholic temporal authority, whilst they disagreed among themselves. To Cromwell, in all his attempts to assure the supreme power, he was a determined adversary; and on account of his efforts for this purpose, he was summoned before the council by Cromwell in 1656, and ordered to give security that he would not disturb the nation, and for his refusal he was for a short time imprisoned at Carlisbrook castle; and though attempts were made to intimidate him by disputing his title to the Ruby estate, he remained inflexible during the period of the usurpation. In Richard's parliament of 1659, he was a representative of the borough of Whitchurch in Hampshire, and was active in his endeavours for restoring the republican government, and his spirited speech for this purpose, on record, is said to have had no small effect in subverting the new phantom of single authority. After the revival of the Long parliament, he was nominated one of the committee of safety, and proposed a new model of government, of which it was a fundamental principle, that in the delegation of the supreme power from the people to their representatives, there were some points which could not be affirmed as self-evident, and of which it was of the highest importance that the king or single person to the legislative or executive power, and the exercise of compulsion in matters of faith and worship. Baxter affirms, that Vane's model was that of a "fanatic democracy!" and his notions have been as much reproached by Presbyterian writers as by Episcopalians.

Vane maintained his adhesion to the republican cause, and prosecuted his efforts for supporting it, till the contest was terminated by the Restoration. His conduct on this occasion, though he was not one of the regicides, caused his name to be invested in the lot of those who were excluded from the act of indemnity. Apprehending no personal danger, he continued in his house at Hampstead, till he was taken into custody and committed to the Tower, as a person whom it was hazardous to permit to be at large. A petition, however, was presented to the king by the Convention parliament in favour of him and Lambert, that they should be pardoned as to their lives, to which was returned a gracious answer. Nevertheless in July 1661, in the succeeding parliament, an order was framed by the house of commons, that Vane and others should be tried for the murder of Vane and others, and for other crimes, according to law. Upon this order Vane was brought from his prison in the Isle of Scilly, and committed to the Tower for trial. For his conduct after the death of Charles I, comprehending his active efforts in opposition to the present king, as a member of the council of state and a person in office, he was indicted of high-treason. In June 1662 he was put to the bar, and is said to have defended himself with ability and resolution, or, as his enemies say, with arrogance and insolence. Among other pleas, he urged that treason could only be committed against a king de facto, and not de jure, which was the situation of Charles II till the Restoration; and that he had in all changes adhered to the commons, as the fountain of all regal authority: a principle for which he had expounded himself to the tyranny of Cromwell, and for which he was now ready to undergo all the rigour of perverted law and justice. Nevertheless he was found guilty, and sentenced to suffer the whole penalty adjudged to high-treason, which, however, was commuted for beheading. It has been not unreasonably urged, that though the king could not safely be defended for breach of his promise to the former parliament on this occasion, his death was a retaliation for the part he had acted on the impeachment of Lord Strafford. On the 14th of June he was brought to the scaffold on Tower-hill, and though confi-
VAN
dered as a person possessing little natural courage, he be-
haved with wonderful composure and firmness. In his ad-
dress to the spectators, whilst he justified himself on certain
points that were construed to reflect upon the government
and judges, he was rudely interrupted by the lieutenant of
the Tower, who repeatedly ordered the trumpets to find
that his voice might not be heard. He died about the 50th
year of his age, and left one son. His writings, chiefly on
religious topics, were confused and obscure. Bishop Burnet
says of him, *that though he fat up a form of religion of his
own, yet it confined rather in a withdrawing from all other
forms, than in any new or particular opinions or forms,
from which he and his party were called 'Seekers,' and
seemed to wait for some new and clearer manifestations.
In those meetings he preached and prayed often himself, but
with so peculiar a darkness, that though I have sometimes
taken pains to see if I could find out a meaning in his
words, yet I could never reach it. His friends told me he
leaned to Origen's notion of an universal salvation of all,
both of devils and the damned, and to the doctrine of pre-
existence."

As to his political conduct, it is observed by one of his
biographers, that "though he employed craft and dissimula-
tion as his means, there seems no reason to doubt of his
frankness as to his ends, which appear to have been those of
a politician, but not of a selfish statesman. His enemies
carelessly charge him with mercenary views, and his friends
represent him as a real, though mistaken, lover of his country."

VANE, in a Ship, is a thin flip of bunting hung to the
mast-head, or some other conspicuous place, to shew the
direction of the wind. It is commonly fewed upon a
wooden frame, called the fcock, which contains two holes,
by which to flip over the spindle, upon which it turns about
as the wind changes.

VANE, Dog, in Sea Language, is a small light vane,
formed of a piece of packthread of about two feet in
length, upon which are fixed five or six thin slices of cork
fluke full of light feathers. It is ususally fastened to the
top of a staff, two yards high, which is placed on the top
of the ship's side, on the quarter-deck, in order to shew the
direction of the wind to the helmsman, particularly in a
dark night, or when the wind is extremely feeble. Falconer.

Vanes, or Mathematical Instruments, are ateged to
move and fide upon crosses, fo-called, fo-fo, fo-fo, fo-fo,
Vanes, or Fantes, of Feathers. See Feather.

Vanes, Weather. See Weather.

Vanes of Windmills. See Windmill.

Vaneering. See Venerering.

VAN-ELLEN, Justus, in Biography, was born at
Utrecht in 1685, and losing his father during the course of
his academical studies, he commenced the profession of an
author for a subsistence. His first work, published in 1711,
was entitled "Le Misanthrope," written after the model of
the English Spectator, which he continued till it amounted
to two vols. 8vo. To the "Literary Journal," established
by a society of young persons at the Hague in 1713, he was
a liberal contributor; and the profits were alluded to him.
The contributions to this Journal were examined by the
whole society, so that every article was sanctioned by the
judgment of the whole body. This was continued till the
year 1718, when Van-Elfen engaged in a new periodical
paper, entitled "Bagatelle, ou Dificours Ironiques," de-
gigned to ridicule the vices and follies of the time. This
publication failed of success. The author afterwards en-
gaged in various literary undertakings, and agreed to con-
tinue the " Nouvelles Litteraires," when the prince of 111.

Philippitahl, in 1719, took him as a companion in a journey
to Sweden. Of this tour he published an account in 1726,
in a second edition of his "Misanthropie." He afterwards
occupied himself in translations, chiefly from the English;
and at Leyden, where in 1724 he superintended the educa-
tion of a young man at the university, he undertook to
translate from Dutch to French Gerard Van Loon's "Mel-
dalick History of the United Provinces," but a dispute
occurring between him and the bookfellers, he finished only
two volumes. In 1725 he commenced a new periodical
work, under the title of "Nouveau Spectateur Francois," of
which twenty-nine sheets appeared. In 1727 he accom-
panycd the count of Welderen, ambassador from the States
to the court of London, as his secretary, when he wrote an
ode in French on the coronation of George II. In 1731
he began a work, entitled the "Dutch Spectator," and
continued it till the whole amounted to 12 vols. 8vo. Van-
Effen died in September, 1731, at Bois-le-Duc, where he
had for some years occupied the post of inspector of the
magazines. He sustained the character of an ingenious and

VANELLLOE, in Botany, See VANILLA.

VANELLUS, in Ornithology, a name given by many to
the lapwing, more commonly known by the name capella.

VANETTI, Clementino, in Biography, knight of the
holy Roman empire, and lord of Villanova, was born at
Roerdero in 1755, and being educated under the care of
his uncle, after the death of his father, he became, by in-
cently reading Plautus and Terence, so good a Latin
scholar, that, in his 16th year, he wrote a Latin comedy,
entitled "Lumpadaria," and, in the following year, recited
an inaugural oration in the Academy degli Agiati at Ro-
veredo, in the true language of Plautus. Before the age of
22, he was elected secretary of this Academy, and he had
improved his taste by a familiar acquaintance with the works
of Cicero. In 1776 he defended Tirabochi against the at-
tack of the Spaniard Serrano, for his censure of some paf-
fages in the epigrams of Martial; and the letter he publised
on this occasion, considered as the production of a young
man 23 years of age, was much admired. Upon the death
of his intimate friend, the abbé Zorzi of Venice in 1779,
he paid an honourable tribute of respect to his memory by
publishing his life, and a collection of letters that had passed
between them, and also an examination of a question sug-
gested by d'Alembert, whether any one at present should
venture to write Latin, which he decided in the affirmative.
But Vanetti's most humorous writing, in the Latin language,
was a bitter satire on Caggioiro, who deluded the people at
Roerdero, in 1788, by his pretended prophecies and miracles.
Vanetti, in order to expose this juggler, wrote a small work
in the manner of the book of Chronicles, and in the Latin
lyle of the Vulgate, entitled "Liber Memorialis de Caggio-
iro." Encouraged by Betinelli and others, he became a
classical writer in his native language, beginning with a
well-written life of the younger Pliny. But his chief fame
was derived from his "Observations on the Poems of Horace,
with Illustrations of that Poet," which, with respect to matter
and language, are laid to exceed any thing of the kind in
Italian. He also published fourteen dialogues in the manner
of Lucian: and having tried his talents in various kinds of
poetry, his "Sermon" in the true Horatian spirit are pre-
comment, and hence he obtained the name of the Italian
Horace. Besides the reputation which he acquired as a poet,
he also excelled in etching paintings. To the noise and
trifle of the world he preferred the tranquillity of domestic
life on his estate, which he compared to the Sabine farm of
Horace, and never travelled farther from home than Verona,
Manila,
Mantua, or Venice; and he died, universally lamented, in his native city, of an inflammation of the lungs, in the 40th year of his age. The abbé Lorenzi published at Roveredo, in 1799, "Commentarius de Vita et Scriptis Clementini Vanneti," from which the preceding account of him has been extracted. Gen. Biog.

VAN-EYCK. See Eyck.

VANGAC, in Geography, a river of the island of Luçon, which runs into the Chinese sea, N. lat. 18° 45′.

VANGEN, a town of France, in the department of the Lower Rhine; 9 miles S.E. of Saverne.—Allo, a town of Switzerland, in the canton of Berne; 4 miles E. of Solercure.

VANGIONES, VANGAC, and VANGAC, in Ancient Geography, a people of Belgic Gaul, and originally of Germany. According to Cluver, they were bounded on the north and east by the Rhine, on the south by the Nemetes, and on the west by the Mediomatrices.

VANGOLE, in Geography, a town of Hindoostan, in Coimbatore; 5 miles N. of Aravaxourche.

VAN-GOYEN, in Biography. See Goyen.

VANS, in Sea Language, are a sort of braces to support the mizen-gaff, and keep it steady. They are fixed on the outer end or peak, and reach downwards to the after part of the ship's side, where they are hooked and drawn up; so as to be flapped when the wind is fair; and drawn in to windward, when it becomes unfavourable to the ship's course. Falconer.

VANG-TCHOUANG, in Geography, a town of China, in Kiang-nan, on the river Hoang; 15 miles W.N.W. of Fong-yang.

VANGUERIA, in Botany, a barbarous and intolerable name, made by Commeron out of the Madagascar appellation of this plant, Voa-vanguer. Von Rohr called the same genus Vavanga; which Vahl has unwillingly adopted, expressing at the same time a wish, that he could have dedicated the genus to professo Wittmann. We should now have taken advantage of this wish, had there not already been a Vantium, which will appear in its proper place. Thus circumstanced, and without meaning, on this or any other occasion, to uphold such names, except for reprobation, we for the present here introduce Vangueria.—Juff. Gen. 260. Wild. Sp. Pl. v. 1. 976. Poir. in Lamarck Dict. v. 8. 331. Lamarck Illust. t. 159. Venten. Tabl. 586. Jacq. Hort. Schoenbr. v. 1. 20. (Vavanga; Vahl T. 207.)—Clados and order, Pentandria Monogynia. Nat. Ord. Rubiaceae. Juff.

Gen. Ch. Cal. Perianth superior, of one leaf, with five spreading, somewhat reflexed, permanent teeth. Cor. of one petal; tube bell-shaped, twice the length of the calyx, closed at the upper part with erect hairs; limb in five deep, ovate, acute, equal, spreading, at length reflexed, segments, rather shorter than the tube. Stam. Filaments five, awl-shaped, very short, inserted between the segments of the corolla; anthers heart-shaped, pointed, incumbent. Pfbl. German inferior, turbinate; style awl-shaped, rather longer than the tube, inclining to one side; stigma thick, obtuse, furrowed, two-ridged. Peric. Berry globose, coriaceous, with a furrow at the top, containing four or five seeds, imbedded in pulp. Sede elliptical, compressed, with a lateral scar, and a small incomplete tunic, of two membranous, lanceolate, falcate valves, attached to the scar.


1. V. edulis. Madagascar. Medlar. Wild. n. 1. Vahl Symb. v. 3. 36. (V. Commeronii; Jacq. Hort. Schoenbr. v. 1. 20. t. 44. Vavanga edulis; Vahl Tr. of Nat. Hist. Soc. of Copenb. v. 2. pl. 1. 208. t. 7.)—Gathered in the island of Bourbon, by Commeron, whose specimens are before us. Cultivated in Guadaloupe and Santa Cruz, for the sake of its cattable fruit. Von Rohr, who communicated this plant to professor Vahl, thought it a native of China, but Commeron was told it came from Madagascar, and was there called Voa-vanguer, or Voa-wangi. Jaquetin mentions it as flowering every year in the stoe of Schoenbron, but never ripening fruit. The stem is shrubby, fix feet, or more, in height, with round, smooth, opposite branches, slightly quadrangular when young. Leaves opposite, on short stalks, deciduous, elliptical, acute, entire, smooth, five or six inches long, and two or three broad, with one central rib, and many transverse ones connected by reticulated veins; paler beneath. Stipular intralocular, triangular, pointed, in pairs connected at the base, embraces the branch above the footstalks, and much resembling those of Stereobay. Pannus lateral, opposite, cymose, many-flowered, downy, much shorter than the leaves, springing from between the insertion of last-year's footstalks. Flowers greenish-yellow, smaller than any of the valley, frequently four-cleft. Fruit the size of a large gooseberry, with a leathery, or somewhat flaccid, coat.

VANHALL, John, in Biography, an instrumenal composer of great and original genius, was born at Vienna in 1740. We know not what he had published previous to his symphonies, which were composed in 1767, and soon circulated in MS. all over Europe. The duke of Dorset, we believe, first brought them to England about the year 1771. Several excellent symphonies of the Manhein school had been previously published by Bremner, which introduced us very agreeably to the new style of German symphony founded by the elder Stamitz; but till we were acquainted with the symphonies of Haydn, the spirited, natural, and unaffected style of Vanhall excited more attention at our concerts than any foreign music which we had imported for a long time. They were admirably played at the Pantheon concerts, when led by La Motte, Giardini, and the elder Cramer. He composed too much perhaps, and for too great a variety of instruments; but his symphonies, quartets, and other productions for violins, certainly deserve a place among the first productions, in which unity of melody, pleasing harmony, and a free and manly style are preferred. VanHuyssen. See Huyssen.

VANI, a name of the Hindoo goddess Sarâ/wâti; which see. This name is also given to Agni or Pavaka, regent of fire; when, however, it is usually written Vahni.

VANI, Cape, in Geography, a cape on the N. coast of the island of Milo. N. lat. 36° 46′. E. long. 24° 20′.

VANIAMBADDY, a town of Hindoostan, in Myforie; 112 miles E. of Seringapatam. N. lat. 12° 41′. E. long. 78° 45′.

VANNEMSOAR, a town of Hindoostan, in Godda; 21 miles S.W. of Damapatia.

VANIERE, James, in Biography, a learned Jesuit, was born in 1664, at Causses, in the diocese of Beziers, Languedoc, and having studied at the Jesuits' college at Beziers, entered into the society in 1682. His poetic talents were exhibited by two pieces, one entitled "Stagna," during his regency at the college of Tournon; and another entitled "Columbia," at Toulouse: and his character as a poet was established by his "Praedium Rufficum," in fifteen books, on the subject of a farm, in imitation of Virgil's Georgics. The most complete edition of this work is that of Paris, in 1756. Vaniere was successively professor and rector in the schools of his order at Montpelier, Toulouse,
and Auch, and died at Toulouse in 1739. His other works were a volume of "Opuscula," consisting of eulogies on moral topics, epistles, odes, epigrams, &c.; a "Dictionary of Poetry," in Latin, quarto, a work in high estimation, and abridged for the use of students; and a "Dictionary, Latin and French," which he began, but did not live to finish. For his encouragement in his studies, the king allowed him a pension. Moreri. Nouv. Dict. Hift. Gen. Biog.

VANERIA, in Botany, received its name from Loureiro, in memory of father James Vanier, a French Jesuit, who was born in 1664, and died in 1739; celebrated for a poem on rural life, in which various plants are beautifully described. — Loureiro. Cochinch. 564.—Clasf and order, Monocia Pentandria. Nat. Ord. Ursica. Juff.

Gen. Ch. Male, Cal. Perianth inferior, of three nearly direct, lanceolate, equal, coloured leaves, deciduous. Cor. Petals two, lanceolate, of the size and colour of the calyx. Nectar a lip, proceeding from the lower part of the style, con- voluted at the base, dilated at the margin, without a spur, falling off with the petals. Stam. Another a hemispherical, movable, terminal, deciduous lid, of two cells, attached by its posterior edge to the top of the style; masses of pollen globular, granulated. Pfr. Cor. inferior, elongated, nearly cylindrical, style erect, semicylindrical; stigma convex, towards the top of the style, in front. Peric. Capsule elongated, slightly triangular, effuse, of one cell. Seeds very numerous, lenticular, dehiscing of a tuft, imbedded in pulp.


1. V. aromatica. Aromatic Vanilla, Vanilla, or Vanilla. Willd. n. 1. Ait. n. 1. (V. flore viridi et albo, fructu nigricante; Plunt. Ic. 183. t. 188. V. maxima; Merian. Surin. t. 25. Epidendrum Vanilla; Linn. Sp. Pl. 1347.) Leaves ovate-oblong, ribbed. Calyx and petals undulated. Lip acute. Capsule nearly cylindrical, very long.—Native of South America. Stem parithical, climbing by means of simple, effuse, fibrous, solitary radicles from each joint. Leaves a span long, succulent, as thick as those of houseleek. Flowers large, variegated with green and white. Fruit eight or ten inches long, acquiring, after it is gathered, a peculiar and delicious fragrance, like the flowers of Orchis nigra, and some others of that family; on which account the Vanilla is used to perfume chocolate, and becomes a valuable article of commerce.

2. V. angififlua. Narrow-leaved Japan Vanilla. Willd. n. 2. (Epidendrum Vanilla ?; Linn. Sp. Pl. 1348. Angurak. Warna; Kempf. Amon. 867. t. 569. f. 2.) Leaves linear-lanceolate. Calyx and petals flat. Lip acute.—Native of Japan. By Kempfer's account this is a parithical climber like the last, and agrees with that in the colours of its flower, except being dotted with purple. Nothing is said concerning the fruit.

3. V. clamensata. Tendril-bearing Vanilla. Swartz Ind. Occ. 1515. Willd. n. 3. (Cereus affinis feraeiss planta aphylla, &c.; Sloane Jam. v. 2. 160. t. 244. f. 3. 4.) Leaves lanceolate, acute, concave, rigid, recurved. Calyx and petals flat. Capsules somewhat triangular.—Native of woods, on a very dry calcareous soil, in the mountainous inland parts of Jamaica, Hispaniola, &c. flowering in July. It is vulgarly called Green-wth, and the negroes use a decoction of the whole plant for syphilitic complaints. The stem climbs to the height of twenty or thirty feet, and is covered, as it joined, at the infection of each leaf, and tendril-like radicles. Leaves fleshy, an inch long. Flowers large, white, in axillary clusters. Fruit long and large, fleshy, with black fuming seeds. Swartz. The figure of the flower in Swartz's plate belongs to this species.

4. V. planifolia. Fragrant Vanilla. Ait. n. 2. Andr. Repuf. t. 538. (Myobroma fragrans; Salib. Parad. t. 82.)—Leaves oblong-lanceolate, flat, slightly reticulated. Calyx and petals even. Lip fringed, abrupt.—Native of the Well Indies, said to have been introduced into our flowers by the present duke of Marlborough. In July this rivals the first species, but the leaves are not so thick; the calyx and petals are not undulated, nor the lip pointed. We have no account.
account of the fruit. The flowers are said to be very fragrant, especially at night. Mr. Salisbury is erroneously charged, in Andrew's work, with having confounded this and the *V. aromatica*.

The species of this genus are far from being all known or understood.

The plant which produces the fruit called *vanilla* or *branilla* by the Spaniards, or the *epidendrum vanilla* of Linnaeus, has a trailing stem, somewhat like the common ivy, but not so woody, which fastens itself to any tree that grows near it by small fibres or roots produced at every joint; these attach themselves to the bark of the tree; and by them the plants are often nourished, when they are cut or broken off, from the root, at a considerable height from the ground, as is the case with the ivy in England. The leaves are as large as those of the common laurel, and are produced alternately at every joint. It rifes to the height of eighteen or twenty feet, and the flowers are of a greenish-yellow mixed with white, which, when fallen, are succeeded by the fruit, which is eight or ten inches long.

The fruit which is manufactured, grows not only in the bay of Campeachy, but also at Carthagena, at the Carareas, Honduras, Darien, and Cayan, at all which places the fruit is gathered and preferred; but it is rarely found in any of the English settlements, though it might be easily propagated in them. For the flowers are so full of juice, that they will continue fresh, out of the ground, for several months.

When these plants are intended for propagation in the warm parts of America, nothing more is required than to make cuttings of three or four joints in length, which should be planted close to the stems of trees in low marshy places, and the ground about them kept clear of weeds.

The method used to preserve the fruit is, when it turns of a yellow colour, and begins to open, to gather it, and lay it in small heaps to ferment two or three days, in the same manner as is practised for the cocoa pods; then they spread them in the sun to dry, and when they are about half dried, they flat them with their hands, and afterwards rub them over with the oil of palma Chrifli, or of the cocoa; then they expose them to the sun again to dry, and afterwards they rub them over with oil a second time; then they put them in small bundles, covering them with the leaves of the Indian reed to preserve them. These plants produce but one crop of fruit in a year, which is commonly ripe in May, fit for gathering, for they do not let them remain on the plants to be perfectly mature. When they are about half changed yellow, they emelf them better for keeping than when thoroughly ripe; at which time the fruit splits. While the fruit is green it affords no remarkable scent, but as it ripens it diffuses a most grateful aromatic smell; but when it begins to open, the birds attack them, and devour the seeds greedily.

The fruit which is brought to Europe is of a dark-brown colour; wrinkled on the outside, and full of a vast number of black seeds, like grains of sand, of a pleasant smell, like balsam of Peru.

This fruit is only used in England as an ingredient in chocolate, to which it gives an agreeable flavour to some palates, though it is disagreeable to others; but the Spanish physicians use it in medicine, and emelf it grateful to the stomatch and brain, good for expelling wind, for provoking urine, refifting poifon, and curing the bite of venomous animals. Miller's Gard. Dict.

The *vanillas*, or *vanilloes*, have an unaccountable aromatic taste, and a fragrant smell, like that of some of the finer balsams heightened with mufk. They are used chiefly in perfumes: scarcely ever among us in any medical intention: though they should seem to derive a place among the principal medicines of the nervous elafos. By distillation, they impregnate water strongly with their fragrance, but give over little, or nothing with pure spirit. By digestion, spirit totally cxtracted by them is not taken off by mufk, nor does it produce a very agreeable taste; but if mildly diluted with it, it acquires a pleasant aromatic quality.
his writings were as aburf or blasphemous as to entitle him to the character of a defisher of God and religion." An Apology for Vanini was published in Holland in 1712, by Peter Frederick Arp, a learned lawyer. Moreri. Molhein, vol. v.

**VANISHERING FRACTIONS**, are fractions in which, by giving a certain value to the variable quantity or quantities entering into them, both numerator and denominator become zero, and consequently the fraction itself is then $\frac{0}{0}$.

The idea of fractions of this kind first originated about the year 1702, in a contest between Varignon and Rolle, two French mathematicians of some eminence, concerning the principles of the differential calculus, of which the latter was a firenous opponent; and among other arguments against the truth of the doctrine which had then been recently introduced, he proposed an example of drawing a tangent to a certain curve, at the point where the two branches intersect each other; and as the fractional expression for the subtangent, according to that method, had both its numerator and denominator equal to zero, or $\frac{0}{0}$, he regarded such a result as aburf, and adduced it as a proof of the fallacy of this mode of solution. But the mystery was soon after explained by John Bernoulli; and upon a renewal of the dispute, still farther by Saurin, who showed that the fraction in the case here mentioned had a real value. These fractions were also the cause of a violent controversy between Waring and Powell in 1762, when these gentlemen were candidates for the mathematical professorship at Cambridge: Waring maintaining that the fraction $\frac{x^3 - a^3}{x - a}$, when $x = 1$, is equal to $4$; and Powell, or rather Maferer, who is commonly supposed to have conducted the dispute on the part of the latter, that it was equal to $0$, or indeed that it could have no value whatever; and it must be acknowledged that the fame difference of opinion relative to this kind of fractions still exists in all its force. Woodhouse, in his "Principles of Analytical Calculation," in treating of these quantities, after assuming the simple case of $\frac{x^3 - a^3}{x - a}$ to find the value of it, when $x = a$, observes, that the signification of this expression is, that $x^3 - a^3$ is to be divided by $x - a$, and the result of that division is $x + a$, or putting $x = a$, it becomes $a + a$, or $2a$. This result, however, he remarks, is no direct and natural consequence arising from the principles of calculation, but, on the contrary, it is a result arbitrarily obtained, by extending a rule, and observing a certain order in the processes of calculation.

To the question, what does $\frac{x^3 - a^3}{x - a}$ become when $x = a$; the obvious and logical answer is $x^2 + ax + a^2$, and the question is, whether in this form it will admit of any further reduction. It is true, if we operate upon this quantity according to the rules laid down in other apparently similar cases, we obtain $\frac{x^2 - a^2}{x - a} = x + a = 2a$; but here is evidently an extension given to a rule beyond what was first intended; for this rule was instituted for operating on real quantities, whereas in this case we have employed it on quantities having no value whatever, being in fact the division of $0$ by $0$, for which abstruseuly no rule can be given. This, however, is not a case peculiar to these fractions. It is to the fame source we must attribute the introduction of the negative symbol, and all the mysteries attendant upon it, as well as to every kind of imaginary quantity.

In vol. i. p. 219, of Bonnycafe's Treatise of Algebra, we have the following rule for finding the value of vanishing fractions.

1. If both the terms of the given fraction be rational, divide each of them by their greatest common measure; then, if the hypothesis which is found to reduce the original expression to the form $\frac{0}{0}$ be applied to the result, it will give the true value of the fraction under consideration.

2. When any part of the fraction is irrational, observe what the unknown quantity is equal to, when the numerator and denominator both vanish, and put it equal to that quantity $+ i$; then if this be substituted for the unknown quantity, and the roots of the surds be extracted to a sufficient number of places, the result, when $i$ is put equal to $o$, will give the true value of the fraction. From which rule the author obtains the following results: 

1. $\frac{x^3 - a^3}{x - a} = 2a$, when $x = a$.
2. $\frac{b(x - \sqrt[2]{ax})}{x - a} = \frac{1}{2} b$, when $x = a$.
3. $\frac{x^n - a^n}{x - a} = m a^{n-1}$, when $x = a$.

See Bonnycastle's Algebra, Woodhouse's Principles of Analytical Calculation, and Barlow's Dictionary.

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See Bonnycastle's Algebra, Woodhouse's Principles of Analytical Calculation, and Barlow's Dictionary.
complished and elegant woman, and we never heard any thing more pleasing than her performance.

VAN-MALDER, concert-matter and chamber-musician to prince Charles at Brussells, and leader of the band at that theatre; a composer of spirited and pleasing symphonies, which were long in favour at our national theatres. He composed a comic opera, "La Bagarre," 1754, for the Italian theatre at Paris, and died at Brussells in 1771.

VAN-MANDER, a painter and author, was born at Meulebeke, near Courtray, in 1548, of a noble family, and received an education fitted to his rank. His talents developed themselves at an early period of his life, and particularly a disposition to painting; and he was placed under the tuition of Lucas de Heere; afterwards he became a disciple of Peter Vlrick, an historical painter of some eminence at Courtray, and finished his education in art by a journey to Italy, where he studied for three years. From thence, after painting several pictures, he went to Vienna, accompanied by Spranger, whose friendship he had cultivated, and there received a preening invitation to enter the service of the emperor; but love for his native country prevailed, and thither he returned. He then experienced much encouragement, and was in possession of full employment, when the wars in the Low Countries prevented his enjoyment of it. He took refuge in Haerlem, and there with Goltzius founded an academy. Van-Mander united with the talents of a painter that of a poet, and composed tragedies and comedies, several of which were acted with success, with decorations painted by himself; and we are indebted to him for a very useful history of the painters of antiquity and of his own country. He died at Amsterdam, in 1606.

VANNIEUS, Lat. VANNIE, STEFFANO, Ital., the name of an Augustine monk, born at Ricinati, a small town in the March of Ancona and Ecclesiastical State, was music director at Afoli, who published at Rome in 1553, small folio, a mot moleant treatise on music, in which he has inserted all that preceding books on the subject contained. There is nothing that was new in this at the time of its publication; but no one book then published contains half its contents. Walther has given a long list of the divisions and subdivisions of this work, which is written in Latin, and which, perhaps, is all that will ever be read by those who may obtain possession of the book, which is now become very scarce.

VANNE, in Geography, a river of France, which runs into the Yonne, near Sens.

VANNES, a small island in the North Sea, on the coast of Norway. N. lat. 70° 10'. E. long. 197° 44'.

VANNES, a sea-port town of France, and capital of the department of the Morbihan, at the union of the two small rivers, which form a harbour in the lake Morbihan; before the revolution, the fee of a bishop. The principal commerce is in corn, bar-iron, and fish. It has two suburbs, one of which is larger than the town itself. In 1800, the royalists, under Georges, were defeated by the republicans, under Brun; 13 posts N.W. of Nantes. N. lat. 47° 30'. W. long. 2° 40'.

VANNES, Lat., a town of France, in the department of the Ardèche; 6 miles S.W. of Joyeuse.

VANNI, FRANCESCO, Cavalier, in Biography, was the son of a painter of little celebrity at Vienna, who died whilst he was very young, and was born in 1563. He went to Rome when he was about fifteen, and entered the school of Giovanni de Vecchi, and became an imitator of Baroccio. He also went to Parma to draw from the fame fount as Baroccio, viz. the works of Corregio and Parmigianino. He was invited to Rome to aflit in adornning St. Peter's, and there he painted his Simon Magus, which yet, though much injured, attests his capacity. For this performance Clement VIII., con$idered appro priate, the order of Christ. He also painted several other pictures for public edifices in that city; but his best performances are at Sienna, as his Marriage of St. Catharine, in the church of II Refugio; and S. Raimondo walking on the Sea, in the Dominicans; which is considered the finest work in the city. He died at Sienna in 1610, at the age of forty-seven, leaving a son, Rafaelle Vanni, then only thirteen, who afterwards became a painter, and imitated the works of Pietro Cortona. He became a member of the academy of St. Luke in 1655.

VANNICUM REGNUM, in Ancient Geography, a kingdom of European Sarmatians, according to Phny. Tacitus reports that it was the kingdom of Vannius, which Drufus allotted as a portion to the Sueans, when he fixed their abode on the Danube, between Marus and Cufus.

VANNING-SHED, among Miners, an instrument used for washing the ores of any metal, after being reduced to powder, by which to discover the richness and other qualities of the ore. See SHED, Tin, and VAN.

VANNUCCI, in Biography. See Andrea del Sarto, and Perugina.

VAN-ORIOT. See Oriot.

VAN-OOST. See Oost.

VAN-ORLAY. See Orlay.

VAN-OSTADE. See Ostade.

VANQUISH, a disease in sheep, which has often the titles of pinning and daifing given to it by shepherds.

It is describ'd as most fierce among young sheep by fome, and as, in a great measure, confined to fome particular districts in the western portion of the north part of the island, where the land is very clofe, hard, dry, and heathery. It is laid that it constantly fixes on the belly of the flock, and that although they continue to feed moft greedily, they daily pine away to a mere skeleton. But that it is fortunately not a difeafe that is attended with great danger, as on removing them to soft gravy pastures, especially such as have been recently limed, they almost immediately recover, and never fail, in future, to become excellent and healthy animals. So far as regards the gradual wasting of the animal, this disease has some reemblance to the rot in its nature and caufe; it is directly the reverse:—that it arises from an excess of moifure, is a diseafe of debility, and is charaeterized by extreme thinness of the blood; while in this, or the vanquish, on the contrary, the condition of the animal is too high, its blood too thick, and its paffure too arid, dry, and parched.

Others, however, describe it in so different a manner, that it fearcely appears to be the fame diseafe. On peat-mofs lands much exposed to the north-eaft, in cold moifit feaons, where fheep-farmers have not the command of drier fonder pastures, on which the fheep can be turned in the autumn and winter months, the young fheep are liable to be attacked by the vanquish, which confines them entirely away. This malady has its feat, as is fuppofed by praetical fhepherd's, chiefly in the blood and bones: but it feems, in a little time, to spread over the whole fytem, which becomes debilitated and emaciated. Cold and moifure are laid to aflit in bringing it on, and also to aggravate the appearances; but the principal fault, it is believed, is in the mofty land. The mofses become the earliest common pastures for fheep in these places in the spring feaon, but fome part of the food they fupply is dry, wiry, and unpalatable, and the heath lefs kindly and grateful.
grateful to the sheep than that on dry moory land on gravel, being often scanty, woody, and rigid. The excess of moulder, too, in them may probably, it is thought, affect the qualities and healthiness of the heat, as food for sheep. Besides, there is in such mossey a greater proportion of the crofs-leaved fern than is found on dry sheep-walks; and it is thought by many that sheep do not relish it so well as the common kind, when the shoots are young.

From these accounts, it would seem that the true nature of the complaint is not yet well understood, but it is probably some defect in the lachet organs, by which a due supply of nourishment is prevented from being taken up, the consequence of which is a rate of atrophy and emaciation in the animal.

The remedies which have been chiefly depended upon in these cafes by sheep-farmers, are those of either removing the sheep into fresh grassy lands, or the change of them from the peaty pasture to one that is sweet and dry, during the autumn and winter. The latter, it is said, not only proves a cure of the disease, but wholly prevents it. In some cafes, medicines of the mild stimulating balsamic kind might perhaps be used with benefit.


VANS, les Dames, or Vanaut, in Geography, a town of France, in the department of the Marne; 12 miles N.E. of Vincennes le Franc.

VANSIRE, in Zoology, a species of weasel with short ears; the hair brown at the roots, barred above with black, and ferruginous; the tail of the same colour; the length from nine to about fourteen inches, and the tail nearly ten. This animal inhabits Madagascar.

VANSOMER, Paul, in Biography, a portrait painter, born at Antwerp in 1576: he for a while resided at Amsterdam, and with his brother Bernard practised his art there with success. About 1605 or 1606, he visited England, and was very much employed there; as many of his portraits are to be found in the houses of our nobility. He had the honour to be employed to paint king James I., and his queen, Anne of Denmark. He died at about the age of 45, and was buried in St. Martin's, as appears by the register, January 5, 1621.

VANSTOWN, in Geography, a town of the Cherokees, on the river Alabama.

VAN-SWIETEN, in Biography. See Sweieten.

VANT, or Vaunt. See Van.

VANTANEA, in Botany. Juss. 434; a name of Aublet's, which Schreber, according to correct rule, could not retain. See Lemsicia.

VANT-CHIN, in Geography, a city of China, of the second rank, in Quang-hi; 1147 miles S.S.W. of Peking. N. lat. 23° 17'. E. long. 106° 51'.

VAN-TIEN, a city of China, of the second rank, in Yen-nan; 1295 miles S.W. of Peking. N. lat. 24° 29'. E. long. 109° 14'.

VAN-UDEN, Lucas, in Biography, a landscape painter, born at Antwerp in 1595. He was principally his own instructor, and cultivated his talents by an allidious attention to nature, and studying the landscapes of Rubens, whom he imitated, and who employed him to paint on the back grounds of his pictures; which he did with so much conueniency of stile, that they appear to be the work of the same hand. He lived to the age of 65. He had a brother, Jacques Van-Uden, also a landscape painter, but inferior to him.

VANEY, in Geography, a town of France, in the department of the Côte d'Or; 6 miles E.S.E. of Châtillon-sur-Scorre.

VANZE, a town of Naples, in Basilicata; 10 miles S.E. of Venosa.

VAPINCUM, in Ancient Geography, Gap, a town of Gallia Narbonensis, between Caturiga and Alabons.

VAPORARIUM, or Vaporsomum Balneum, Vapour-Bath, in Chemistry, a term applied to a chemist's bath, or heat, in which a body is placed, so as to receive the fumes of boiling water.

The balneum vaporsum consists of two vessels, disposed over one another in such manner, as that the vapour raised from the water contained in the lower, heats the matter enclosed in the upper.

The vapour-bath is very commodious for the distilling of odiferous waters, and the drawing of spirit of wine. On this subject, see Bath, in Chemistry.

We also use the term vapour-bath, when a good perfume is made to receive the vapours arising from some liquid matter placed over a fire.

Many contrivances have been proposed for this purpose; and their expediency and utility are best known to those who are conversant in this business. See Aquaeus Bathis.

VAPORIZATION, Vaporation, in Chemistry, a term applied to the action of a fume, or vapour.

Vaporation is a kind of bathing, or rather of fomentation, by which the warmth, or humidity, of a vapour is made to act on some other body, that is to be warmed or moistened.

VAPORSUM BALNEUM. See Vaporation.

VAPOUR, Vapor, in Meteorology, a thin vehicle of water, or other humid matter, filled or inflated with air; which, being rarefied to a certain degree by the action of heat, ascends to a certain height in the atmosphere, where it is suspended, till it returns in firme of rain, snow, or the like. An assemblage of a number of particles, or vehicles of vapour, constitutes what we call a cloud.

Some ufe the term vapour indifferently, for all fumes emitted, either from moil bodies, as fluids of any kind; or from dry bodies, as sulphur, &c. But sir Isacc Newton, and other authors, better distinguished between humid and dry fumes, calling the latter exhalations.

For the manner in which vapours are rafed, and again precipitated, see Cloud, Dew, Rain, Barometer, and particularly Evaporation and Meteorology.

We shall here add, with refpect to the principles of solution adopted to account for evaporation, that Dr. Halley, about the beginning of the last century, seems to have been acquainted with the folvent power of air on water; for, he fays, that, supposing the earth to be covered with water, and the fun to move diurnally round it, the air would of itself imbibe a certain quantity of aqueus vapours, and retain them like fatts dissolved in water; and that the air, warmed by the fun, would fufpend a greater proportion of vapours, as warm water will hold more dissolved fatts; which would be discharged in dew, analogous to the precipitation of fatts on the cooling of liquors. Phil. Traf. Abr. vol. ii. p. 127.

Mr. Ecles, in 1755, endeavoured to account for the action of vapours and exhalation, and their fuppofition in the atmosphere, by means of the electric fire. The fun, he acknowledges, is the great agent in detaching vapours and exhalations from their maffes, whether he acts immediately by himself, or by his rendering the electric fire more active in its vibrations; but their subsequent action he attributes entirely to their being rendered specifically lighter than the lower air, by their conjunction with electrical fire: each particle of vapour, with the electrical fluid that surrounds it, occupying a greater space than the same
weight of air. Mr. Eeeles also endeavours to shew, that the
acet and deficient of vapour, attended by this fire, are the
cause of all our winds, and that they furnish a satisfactory
solution of the general phenomena of the weather and
barometer. (Phil. Trans. vol. xix. p. 124, &c.) Dr.
Darwin, in 1757, published remarks on the theory of
Mr. Eeeles, with a view of confuting it; and attempted
to account for the acet of vapours, by considering the
power of expansion which the constituent parts of some
bodies acquire by heat, and also that some bodies have a
greater affinity to heat, i. e. acquire it sooner, and retain it
longer than others. On these principles, he thinks, it is very
intelligible how water, whose parts appear from the coloip
to be capable of immense unfavourable expansion, should by heat alone
become specifically lighter than the common atmosphere.
A small degree of heat is sufficient to detach or raise the
vapour of water from the mafs to which it belongs; and
the rays of the sun communicate heat only to those
bodies by which they are refracted, reflected, or obfected,
whence, by their impules, a motion or vibration is caufed in
the parts of such bodies. Hence he infers, that the fpheres
circles of vapour will, by refracting the polar rays, acquire a
confant heat, though the surrounding atmosphere remain
cold. If it be asked, how clouds are supported in the
abence of the fun? it must be remembered, that large
mafs of vapour must for a confiderable time retain much of
the heat they have acquired in the day; at the fame time
reflecting, how small a quantity of heat was neceffary to
raise them, and that doubleles even a lefs will be sufficient
to fupport them; as from the diminished preffure of the
atmosphere at a given height, a lefs power may be able to
continue them in their present rate of rarefaction; and
afterly, that clouds of particular fhares will be fatisfied or
clevated by the motion they acquire from winds. Phil.
Trans. vol. i. p. 245.
For the effeét of vapour in the formation of springs, &c.
See SPRING and RIVER.
The quantity of vapour raised from the sea by the
warmth of the sun, is far greater than one would imagine.
Dr. Halley has attempted to effimate it. The refult of
his estimate is contained in the following articles.

1. That water falted to about the fame degree as salt-
water, and exposed to a heat equal to that of a funner's
day, did, from a circular surface of about eight inches
diameter, evaporate at the rate of six ounces in twenty-four
hours. Whence, by a calculs, he finds that the thick-
nets of the pellicle or fkin of water, evaporated in two
hours, was the fifty-third part of an inch; but, for a round
number, he fupposes it only a fixieth part; and argues thence,
that if water as warm as the air in funner evap-
orates the thicknets of one-fifteenth part of an inch in two
hours, from its whole surface; in twelve hours it will
evaporate the tenth of an inch; which quantity, he ob-
serves, will be found abundantly fufficient to furnish all the
rains, fprings, dew, &c. See RIVER.

In effet, on this principle, every ten square inches of the
surface of the water yield in vapour per dem a cubic
inch of water; and each square foot half a wine pint;
even an fpace of four feet square, a gallon; a mile square,
694 tons; and a square degree of fifty-nine English miles
will evaporate 33 millions of tons a day; and the whole
Mediterranean, computed to contain 160 square degrees, at
leaff 5280 millions of tons. Phil. Trans. No 189, or Abr.
vol. ii. p. 108, &c. See RIVER.

2. A surface of eight square inches, evaporated purely
by the natural warmth of the weather, without either wind
or fun, in the course of a whole year, 16,292 grains of water,
or fixy-four cubic inches; consequently the depth of water
thus evaporated in one year amounts to eight inches. But
this being too little to aulter the experiments of the French,
who found that it rained nineteen inches of water in one
year at Paris; or those of Mr. Townley, who found the
annual quantity of rain in Lancashire above forty inches;
he concludes that the fun and wind contribute more to
evaporation than any internal heat or agitation of the
water.

It has fince been discovered, that there was a fource of
error in Mr. Townley's experiments, with which the world
was not at that time ac quainted: his rain-gauge was fixed
in ten yards above the furface of the earth; but Dr. Herberden
has found, that a rain-gauge fixed below the top of a houfe,
received above a fift part more rain than another of the
fame fize above the top of the fame houfe; and that there
fell upon Weftminifter Abbey not much above one-
half of that which fell in the fame space below the tops of
the fplying houses. Experiments made by Dr. Dob-
fon of Liverpool, it appears, that the quantity of rain re-
ceived in a veffel placed on the ground exceeded that re-
ceived by another of the fame dimensions eighteen yards
higher than one-third, and lefs than one-half. Phil.
Trans. vol. lix. art. 47. and vol. lixii. art. 13. p. 256. See
RAIN.

With regard to the caufe of this difference, it may be
oberved, that as in chemical precipitations a greater
portion of the precipitating substance will be received on the
real bottom of a veffel containing the folution than on a
foppofed falle bottom placed any where above it, and that
in proportion to its height above the real bottom; fo a
greater quantity of water, confidering rain as a precipitation
of water before difolved in air, ought, on parting with its
former solvent, to fall on the furface of the earth than on an
imaginary horizontal plane of the fame dimensions above it;
and though the cafes are not exactly parallel, yet the
drops of rain in their defcent muft be somewhat increafed
either in number or fize; partly by fuccedively impinging
on the aqueous particles contained in the air through which
they pass, and by attracting others in virtue of their being
poifoned of a different electricity; and partly by the fpon-
taneous feparation and precipitation of that moisture, which
is known to be contained in confiderable quantities in the
air at all times, and the appearance of which, dripping down
the walls of our houses, &c. is one of the popular figns
Dr. Dobfon flates the annual evaporation at Liverpool,
taking the medium of four years, at 36,78 inches. Dr.
Halley laxes the annual evaporation of London at 48
inches. See Phil. Tranf. vol. lxi. part i. p. 262.

3. The effet of the wind is very confiderable, on a
double account; for the fame obervations weved a very odd
quality in the vapours of water, viz. that of adhering and
hanging to the furface that exhaled them, which they
clothe, as it were, with a fleece of vaporous air; which
once infefling the vapour, it thenceforward rises in lefs
quanity. Whence, the quantity of water left in twenty-
four hours, when the air was very fill from wind,
was very small, in proportion to what went away when
there was a strong gale of wind abroad to difipate the
fleece, and make room for the effillation of vapour; and
this, even though the experiment was made in a place as
clofe from the wind as could be contrived.

Add, that this fleece of water hanging on the furface
of waters in fill weather, is the occasion of very ftrange ap-
pearances, by the refraction of the vapour's differing from
and exceeding that of common air; whence every thing appears
railed,
VAR

raised, as houses like steeples, ships as on land above the water, the land raised, and as it were lifted, from the sea, &c.
4. The fame experiments shew, that the evaporation in May, June, July, and August, which are nearly equal, are about three times as great as those in the months of November, December, January, and February. Phil. Tranf. No. 212. or Abr. vol. ii. p. 110, &c.

Dr. Brownrigg, in his "Art of making Common Salt," p. 189, fixes the evaporation of some parts of England at 73.8 inches during the months of May, June, July, and August; and the evaporation of the whole year at more than 140 inches. The evaporation of the four summer months at Liverpool, on a medium of four years, was found to be only 18.88 inches. Dr. Hales calculates the greatest annual evaporation from the surface of the earth in England at 6.66 inches; and therefore the annual evaporation from a surface of water, is to the annual evaporation from the surface of the earth in Liverpool, as 36 to 6, or as 6 to 1. Phil. Tranf. vol. lxvii. ubi supra.

VAPOURS. Firey, Calidus Ignis, a term used by fome to express those exhalations from the earth, which either take fire of themselves on their bursting forth into the air, or are readily inflammable on the bringing of a candle to them. See DAMP, Gas, HYDROGEN, METEOR, and VENTILATION.

Many of the vapored burning lakes, affect the vaporizing the fumes burfting up through the water, and not to any quality of the water iflelf. Our famous burning-well at Wigan, in Lancashire, is of this kind. The common people affirm, that the water of this spring burns like oil; but there is nothing of truth in this. There burfts up a vapour through the earth in this place, which keeps the water bubbling, as if boiling over in the fire, though it is not warm; and the stream of this breath may be felt ifufing up in these places like a strong wind. This breath alone is inflammable, and takes fire at the approach of a candle, burning with considerable violence for some time. There are coal-pits in the neighbourhood, and the air is certainly of the fame kind with that inflammable vapour often met with in those places, and which maybe prepared from iron diffolved in a proper meneunum. The water iflef, taken from the place, does not burn; and if the bottom be made dry, the vapour which ascends from it will burn as strongly as if the water were there. The flame is not difcoloured like that of fulphurous bodies, nor has it any bad fcent; and the fumes, as they are felt burfting out of the earth, by the hand held over the place, are hot. Phil. Tranf. No. 20.

VAPOUR-Bath. See VAPORISIUM, and BATH.

VAPOURS, in Medicins, a diacife popularly called the hypo, or the hypochondriac difeafe; and in men particularly the spleen. See HYPOCHONDRIANS.

Vapours supputed to be emitted from the womb, in women, we what otherwise call hysterical affections, or affections, or fits of the mother. See HYSTERIA.

VAPPA, a word used by the ancients to express dead wine, or wine deprived of all its fpirituous part.

The word is also metaphorically applied to a peculiar state of the blood, when it is in a low, disfpirited condition, as is the cafe even in healthy persons, when worn out with exceflive labour, and in cachectic and tertianous feverities.

VAR, in Geography, one of the twelve departments of the S.E. region of France, formerly Lower Provence, a maritime territory in N. lat. 43° 30', bounded on the N. by the department of the Lower Alps, on the E. by the county of Nice, on the S. and S.E. by the Mediterranean, and on the W. by the department of the Moutiers of the Rhone. Its territorial extent in kilometres is 7510, and in square
able share in founding the Russian state, and who were a northern tribe of Gothic descent and of warlike disposition and character. Their original country was probably Scandinavia; and they consisted of a combined multitude of Danes, Swedes, and Norwegians, who, perpetually in quest of adventures, established governments in the western and eastern parts of Europe, and produced revolutions, especially in the south, the consequences of which extended through one quarter of the globe. The first trace of their maritime expeditions is discoverable about the year 516; though it is thought probable that they carried on their piracies at an earlier period, and were generally comprehended under the name of Franks, who already appeared under the emperor Probus as enterprising mariners. In the year 795, they were first perceived in Ireland. About the year 813, they began their incursions by the Elbe into Friesland and Flanders; in process of time they advanced to Aquitain and along the Seine: about the year 840, they ravaged France; and in 857, made the conquest of Luna, and afterwards of Pisa, in Italy. In the year 862, Rurik founded the Russian monarchy, and became the father of a dynasty which reigned above 700 years. Accordingly, in the ninth century the Varangians conquered from the Russians, a kindred north-Scandinavian people, the earliest mention of whose name is in the year 839, before Rurik's reception in Novgorod, the modern districts of Reval, St. Petersburg, and Archangel; and subjected the Sclavonians, Krivitches, Tschudites, Velsenians, and Marzens, to a tribute. The Russians retired to Finland and Karelia; but the Sclavonians, in conjunction with the rest of the forenamed nations, drove out the Varangians, and formed themselves at the lake Ilmen, near Novgorod, into a federative democratical republic. Although the Varangians composed the predominant, and under Rurik the most consequential part of the people, yet Sclavonians and Russians were soon blended into one nation. As piracy was the exercise, the trade, the glory, and the virtue of the Scandinavian youth, the Baltic was the first scene of the naval achievements of the northern adventurers; they then visited the coasts of the Baltic, the select residence of Finnic and Sclavonian tribes; and the primitive Russians of the lake Ladoga paid a tribute, the skins of white squirrels, to these strangers, whom they saluted with the title of Varangians, or corsairs. Their superiority in arms, discipline, and honour, commanded the fear and veneration of the natives. In their wars against the more inland savages, the Varangians condescended to serve as friends and auxiliaries, and gradually, by choice or conquest, obtained the dominion of a people, whom they were qualified to protect. At length Rurik appeared; his influence was extended by his brothers; the example of service and usurcation was imitated by his companions in the southern provinces of Russia; and their establishments, by the usual methods of war and annexation, were cemented into the fabric of a powerful monarchy.

As long as the descendants of Rurik were considered as aliens and conquerors, they ruled by the sword of the Varangians, distributed estates and subjects to their faithful captains, and furnished their comforts with the produce of adventures from the Baltic coast. But when the Scandinavian chiefs had trucked a deep and permanent root into the foil, they mingled with the Russians in blood, religion, and language, and the first Waladimir had the merit of delivering his country from these foreign mercenaries. They had seated him on the throne; his riches were insufficient to satisfy their demands; but they listened to his pleasing advice, that they should seek, not a more grateful, but a more wealthy master; that they should embark for Greece, where, instead of the skins of squirrels, silk and gold would be the recompence of their service. At the same time the Russian prince admonished his Byzantine ally to disperse and employ, to recompense and refrain, these impetuous children of the north. Contemporary writers have recorded the introduction, name, and character, of the Varangians: each day they rose in confidence and esteem; the whole body was assembled at Constantinople to perform the duty of guards; and their strength was recruited by a numerous band of their countrymen from the island of Thule. On this occasion, the vague appellation of Thule is applied to England; and the new Varangians were a colony of English and Danes who fled from the yoke of the Norman conqueror. The habits of pilgrimage and piracy had approximated the countries of the earth; these exiles were entertained in the Byzantine court; and they preserved, till the last age of the empire, the inheritance of national loyalty, and the use of the Danish or English tongue. With their broad and double-edged battle-axes on their shoulders, they attended the Greek emperor to the temple, the senate, and the hippodrome; he feft and feated under their truly guard; and the keys of the palace, the treasury, and the capital, were held by the firm and faithful hands of the Varangians.

About the time of Rurik, a Norman of a similar name, Urlich, became famous in the history of Holland. Soon after this, Ofkold and Dir founded another sovereignty at Kief. In the tenth century Ragnvald reigned in Polotsk, from whose daughter, Rogned, the Russian annals derive the grand-dukes of Lithuania. About the year 1000, they took Apulia from the Greeks, and Sicily from the Arabians. They gave Normandy its name, after Rollo had wrested that country from the kings of France. Even the conquest of England by the Danes, in some degree formed a part of the history of these northern adventurers. Tooke's Ruff. vol. i. Gibbon's Rom. Emp. vol. x. See Sclavonians.

VARAHA, in Hindoo Mythology, a name of the god Vishnu, meaning a boar; he having in one of his ten grand incarnations assumed that form, called Varahavatara, which see.

VARAHAVATARA, is one of the ten grand incarnations of their god Vishnu. In this the god attuned, as is commonly said, the form of a boar, Varala; but is usually represented in pictures, with the head of that animal on the body of a man, four-armed, holding the attributes of Vishnu. On the elevated tusk of the boar rests a croucent, containing in its coacacy an epitome of the earth, which had been submerged in the ocean, as a punishment for its iniquities. So that this avatara, or incarnation, the third of Vishnu, seems to be a repetition of the story of the deluge, like the two former, which are named Matsyaavatara and Kurmaavatara, noticed under those articles. The second combines with it a portion of altronomical allegory, and none of the other ten avatatras have any apparent reference to the general catastrophe, so pointedly indicated by the third, which are underfoot to have occurred in the early ages of Hindoo history; if such a chaotic mafs as their fabulous records may be dignified by such a title.

There are many fables accounting for the shape assumed on this occasion by Vishnu, which our limits will not allow us to recite.

VARALLO, in Geography, a town of Italy, in the department of the Gogna, on the Seina; 24 miles N.W. of Novara. N. lat. 45° 59'. E. long. 8° 14'.

VARAMBON, or Varembon, a town of France, in the department of the Ain; 2 miles S.W. of Pont d'Ain.

VARAMUS,
VAR

VARAMUS, in Ancient Geography, a river of Italy, in Venetia, which discharges itself into the Anaflus. Pliny.

VARANASI, the classical name for the city of Benares, in the East Indies. (See BENARES.) This name is said to comprise that of two rivers which form a junction near the city.

VARANGI. See ACHALITHI.

VARANGUEBEC, in Geography, a town of France, in the department of the Channel; 10 miles W. of Carenton.

VARANIA, in Ancient Geography, a town of Servia, taken possession of in the year 1143 by Perigord, general of Manuel, emperor of Constaninople.

VARANO, in Geography, a lake of Naples, in Capitanata, which communicates with the Adriatic; 13 miles N.N.W. of Monte St. Angelo.

VARANO de Marches, a town of the duchy of Parma; 12 miles W.S.W. of Parma.

VARASDIN, a town of Croatia, on the S. side of the Drave, with a castle and citadel; near it is a warm bath; 186 miles N.W. of Belgrade. N. lat. 46º 30'. E. long. 16º 25'.

VARASELLYGUNGE, a town of Hindoostan, in Bahar; 14 miles S.S.E. of Bahar. N. lat. 25º 2'. E. long. 85º 56'.

VARBRESIE, a town of France, in the department of the Rhone and Loire; 9 miles N.W. of Lyons.

VARCES, a town of France, in the department of the Ière; 7 miles S. of Grenoble.

VARCHI, Benedetto, in Biography, was born at Florence in the year 1502, and destined to trade; but manifesting an inclination for literature, he was sent to the university of Padua. His progress in the belles lettres induced his father to educate him for the law at Pisa. But Benedetto, after the death of his father, devoted himself entirely to literature; and when the Strozzi, to whom he was attached, were obliged to quit Florence, he followed them, in 1534, first to Venice and then to Bologna. At Bologna, and also in Padua, he spent some years in study, and in cultivating an intercourse with learned men. At Padua he became a member of the Academy degli Infammati, and read public lectures on morals, and several dissertations on the poems of Petrarch, Bembo, and others. Cofmo I., grand duke of Tuscany, apprized of his reputation, recalled him to Florence, and alligned to him the office of writing a history of the late revolution in that city, with a yearly stipend. Whilst he was thus employed, he was attacked in the night by several persons, who apprehended that his narrative would not be favourable to them, and inflicted on him many wounds. When he recovered, he declined, from motives of prudence or delicacy, to inform against the perpetrators, though he knew them. In the Florentine academy, of which he was one year confid, he delivered lectures. Cofmo recomposed his services with the provovlish of Monte Varchi, on which occasion he took holy orders; but before he could remove thither, he died of an apoplexy in 1565, at the age of sixty-three; and his cullogy was delivered, at his funeral, by Lionardo Salviati.

Varchi was a man of general literature. He wrote a Florentine history, comprising the period from 1527 to 1538, in which he was chargable with gross adulation to the house of Medici. He also published several harangues, academical and funeral; poetical pieces, and a comedy in Italian. As a grammarian, he gained reputation by his dialogue "Ercolano," treating particularly of the Tuscan language. His translations of "Seneca on Benefits," and of the "Philosophical Confutation of Boethius," into Italian, are deemed elegant. His "Lezioni lette nel Accademia Fiorentina" comprehends much various erudition. Upon the whole, Varchi ranked as a man of learning, to whom Italian literature was much indebted. Moreri. Tirafochii.


VARCIA, in Ancient Geography, a town of Belgium Gaul, upon the route from Cambrai to Andematamun, between Vefontio and Andematamun, according to Antonine's Itinerary.

VARDANUS, COUBAN, a large river which discharges itself into the Euxine sea, and into the Palus Mazoises.

VARDAR, in Geography, a river of European Turkey, which rises near Kolumbatz, in Macedonia, and runs into the gulf of Saloniki; 16 miles W.S.W. of Saloniki.

VARDEGUS, a small island of Raffia, in the Frozen ocean; 100 miles N.N.W. of Kola. N. lat. 70º 25'. E. long. 30º 34'.

VARDEN, or WARDAN, or OWARDAN, a town of Egypt, on the W. branch of the Nile, anciently called Latopolis. In modern times it has been famous or rather infamous for the abode of pirates, who robbed the vessels which navigated the Nile. These robbers were routed out, and dispersed by Ali Bey. Here Father Siscard burned heaps of ancient manuscripts, deposited in a dove-house, as books of magic; 18 miles N.N.W. of Cairo.

VARDHUYUS. See WARDHUYUS.

VARDLE, in Rural Economy, a term applied in some cases to the eye or thimble of a gate, which has a spike only. See GATE.

VARDON, in Geography, a town of Abascia, on the Black sea; 28 miles W.N.W. of Mamak.

VARDONES, in Ancient Geography, a people of Germany, who formed a branch of the Vandals.

VARDULI, a people of Hispania Citerior, upon the coast, between the Pyrrenees to the E. and the Caritites to the W. Ptolemy has alligned to them the town of Menofca.

VARECA, in Botany, a bad and merely temporary name, taken from "Wetzuwerika," by which this fruit appears to be known in Ceylon. Gartner received it, with that appellation, from the collection of seeds at the Leyden garden, and thought it might confluxte a new genus. We shall give his description.—Garten. v. 1. 393. t. 62.—Clafs and order, as well as the Nat. Ord., unknown.

Gen. Ch. Flower unknown. Peric. Berry superior, of one cell, half an inch long, ovate, with fix angles, tipped with a short point; supported at the base by a small round disk, having fix flesh notches. Coat coriaceous, thin. Pulp by age become spongy and membranous, divided into partial cells for the reception of the seeds. Recepts three prominent ribs, attached to the inner coat of the berry, into which the external seeds are inserted. Seeds numerous, rather large, nearly ovate, rendered variously angular by mutual preffure, their colour a dampy brown, all inclosed in separate partial cells; the outer seeds attached to the coat of the fruit; the inner imbedded in its pulp. Integument double; the outer thick, coriaceous; inner membranous, very thin. Albumen the shape of the seed, thick, white, of the substance of an almond. Embryo nearly the limb of the albumen, compressed, pulp yellow. Carydides ovate, or rounded, leafy, flat, very thin. Redicile long, nearly cylin- drical, centrifugal, or indeterminate.

Eff. Ch. Flower... Berry superior, of one cell; pulp in many partial cells, appropriated to each seed. Seeds inserted into the coat of the berry.

Gartner observes, that the structure of this fruit agrees, in many points, with that of the Gourd tribe. Gourdaure; but it differs from all hitherto known of that tribe, in being
superior, and in having remarkably albuminous seeds, whereas the *Cucurbita* usually have no albumen. We would remark, with due deference to this justly celebrated carpologic, that the partial cells of the pulp appear to be merely what must occur, in the drying up of any such berry, and probably have no existence in a recent state of the fruit. They are therefore scarcely entitled to be mentioned in the essential character.

VARIELLES SOMMERES, in Geography, a town of France, in the department of the Vienne; 7 miles N.E. of Civray.

VARIEL, a town of Germany, in the county of Oldenburg; 22 miles N. of Oldenburg.

VARELLE, a small island in the Chinese sea, near the E. coast of Malacca. N. lat. 3° 18'. E. long. 104°.

VAREN, a town of France, in the department of the Aveyron; 18 miles N.W. of Alby.

VARENA, a town of Italy, on the lake of Como; 15 miles N.E. of Como.

VARENTAUX, a town of Canada, on the right bank of the St. Lawrence. N. lat. 43° 41'. W. long. 73° 10'.—Allo, a town of France, in the department of the Allier; 18 miles N. of Cuffet.—Allo, a town of South Carolina; 20 miles E. of Queenborough.

VARENE la Grande, a town of France, in the department of the Saône et Loire; 6 miles S. of Chalon.

VARENNES, a town of France, and seat of a tribunal, in the department of the Meuse. In this town the king and queen of France, with the dauphin, the princes royal, and the princes Elizabeth, were stopped in their journey to Montmedy, when they attempted to escape, in the month of June 1791; 7 miles N. of Clermont en Argonne. N. lat. 49° 14'. E. long. 5° 7'.—Allo, a town of France, in the department of the Upper Marne; 6 miles S.W. of Bourgogne.

VARENTANUM, VARENTUM, in Ancient Geography, a town of Italy, in Etruria, according to the Itinerary of Antonine.

VARESA, in Geography, a town of Genoa; 10 miles N.W. of Brugnato.

VARESIO, a town of Italy, capital of the department of the Venetia; 24 miles N.N.W. of Milan. N. lat. 45° 6'. E. long. 8° 49'.

VARGAS, Luis de, in Biography, a Spanish painter of celebrity, was born at Seville in 1528. He went to Italy to improve his talents, and passed seven years in Rome, where he principally directed his attention to Rafaele and P. Perugino's works. When he returned to Seville, he found a formidable rival in Pedro Campana, and he therefore returned to Italy to cultivate his powers still farther; and on returning a second time to his native city, obtained reputation, and employment. He painted for the cathedral two pictures, viz. Christ bearing his Cross, and Adam and Eve; the latter of which is regarded as his master-piece. He executed several other works for the churches in Seville, both in oil and fresco; and he was no less distinguished for his skill in portraiture, particularly in his portrait of Donna Juana Cortes, duchess of Alcalá. He died at Seville in 1550, aged 62.

VARGAS MEXIA, FRANCISCO de, a Spanish lawyer, who occupied several posts in the judicature under Charles V., and became advocate-fiscal in the supreme council of Castile, was beat by Charles, in 1548, to Bologna, to protect against the translation of the council of Trent to that city. After the dissolution of this council, he spent seven or eight years in a public capacity at Venice. Being ordered by Philip II. to act as resident deputy to the Spanish am-bassador at Rome, his known learning and integrity caused him to be much consulted by the cardinals on the subject of episcopal jurisdiction. On his return to Spain, he was nominated a counselor of state; but at length retired from the world to the monastery of Cifías near Toledo. He was author of several works; particularly "De Episcoporum Jurisdictione, et Pontificis Maximis Authoritate," Venet. 4to. 1563; "Commentaries upon War again the Infidels," &c. &c. In 1700, Le Vaissot published in French, at Amsterdam, "Letters and Memoirs of Vargass," relative to the council of Trent, which are said not to be very respectful to that assembly. Moreni.

VARGAS, in Geography, a town of Spain, in the province of Bihac; 11 miles S.S.W. of Santander.

VARGEL, or VARGULA, an ancient town of Germany, in the territory of Erfurt; 10 miles N.W. of Erfurt.

VARGO, a town of Spain, in Catalonia; 14 miles N. of Solfoña.

VAREHEL, a town of Transylvania, built on the ruins of Sârmizagetha, the ancient capital of Dacia, afterwards named by Trajan, Ulpia Traiana; 60 miles E. of Teils; 25 miles S. of Sârbaleu.

VARI. Persons were formerly so termed, when their legs were deformed, and their toes turned in an unusual degree inwards.

VARI, in Medicine, hard, inflamed tubercles, occurring on the face and neck of young people, of both sexes, after the commencement of the period of puberty.

This eruption, which disfigures the countenance at that period of life when personal appearance is usually of the greatest importance in the estimation of the persons affected, has been therefore the object of medical attention from the earliest ages, though in itself but a trivial complaint. Celsius observes, that the Roman ladies in his time were so solicitous of maintaining their beauty, that he deemed it necessary to mention the remedies for this affection of the skin, which otherwise he considered as too trifling for the notice of the physician. "Pene inopinata fent curare varis et lentueilas et pholéides (freckles and sun-spots); fed eripi tamen fenuinis cura cultus fui non poterit." (De Mediciniæ, lib. vi. cap. 5.) The circumstance of this eruption occurring at the period of puberty, and being brought to light by the children, and to their complaint, was given it by the Greek physicians, namely, *iambos* and *acne*. The term *iambos* signifying the langa, or first down of the beard, during which it begins; and *acne*, or *acnes*, implying that it appears at the *acnes*, or period of full growth and evolution of the body. (See Julius Pollux, Onomatolicon, lib. iv. cap. 25. Aetius, Tetrabible ii. ferm. iv. cap. 15, &c.) Under this term *acne*, Dr. Willan arranged the diseased in the order of tubercles, and described four varieties of the eruption, with the epithets *simplus*, *punuitata*, *indurata*, and *rofacs*. See Dr. Bateman's Practical Synopsis of Cutaneous Disoeaes, according to the Classification of Dr. Willan, p. 275.

The *acne*, then, consists of an eruption of these *varis*, or difficult, hard, inflamed tubercles, which are sometimes permanent for a considerable length of time, and sometimes suppurate very slowly and partially, forming only a little matter at the top. They usually appear on the face, especially on the forehead, temples, and chin, and not infrequently on the neck, shoulders, and upper part of the breast, to the extent that might be covered by a tippet; but never defecting to the lower parts of the trunk, or appearing on the extremities. This, however, does not depend on the parts being uncovered; for the limitation is the same in both sexes. As the progress of each tubercle is slow, and they appear in succession, they are generally seen at the same time in their various stages of growth and decline; and, in the
the more violent cases, are intermixed also with the marks or vestiges of those which have subsided.

In different cases, the progress and appearance of the eruption vary considerably, which has given rise to the subdivision of species suggested by Dr. Willan. Thus in the acne simplex, the eruption consists of small vari, which appear singly, and are not very numerous, nor accompanied by much inflammation, nor by any intermediate affection of the skin. Many of the tubercles do not proceed to suppuration; but gradually rise, become moderately inflamed, and again flowly subside, in the course of eight or ten days, leaving a transient purplish-red mark behind. But others go on to a partial suppuration, the whole process of which occupies from a fortnight to three weeks. The tubercles are felt as a small hard nodule in the skin of the size of a pin's head, and enlarge for three or four days, when they begin to inflame: about the sixth or seventh day they attain their greatest magnitude, are prominent, red, smooth, and shining, and hard and painful to the touch. After two or three days more, a small speck of yellow matter appears on the apices of some of the tubercles; and when these afterwards break, a thinner humour is secreted, which soon dries into a yellowish scab. The inflammation now gradually declines, the size and hardness of the tubercles diminish, and the small scab becomes loofened at the edges, and at length falls off at about the end of the third week. The individual tubercles, which rise and suppurate in succession, pass through a similar course.

In the acne indurata, the tubercles are larger, as well as more indurated and permanent, than in the former variety. They rise often in considerable numbers, of a conical, or oblong conoidal form, and are occasionally somewhat acuminate: as it tending to immediate suppuration, being at the same time of a bright-roseate hue; yet many of them continue in a hard and elevated state for a great length of time, without any disposition to suppurate. Others, however, pass on very slowly to suppuration, the matter not being completely formed in them for several weeks, and then only a small part of the tubercles are removed by that process. Sometimes two or three coalesce, forming a large irregular tubercle, which occasionally suppurates at the separate apices, and sometimes only at the largest. In whatever mode they proceed, the vivid hue of the tubercles gradually becomes more purple or even livid, especially in those which show no tendency to suppuration. Slight crusts form upon the suppurating tubercles, which after some time fall off, leaving small scars, surrounded by hard tubours of the same dark red colour; and these sometimes suppurate again at uncertain periods, and sometimes flowly subside and disappear, leaving a pale, or livid discolouration, and occasionally a slight depression, which is long in wearing off.

The tubercles, even when they do not suppurate, but espe-
cially while they continue highly red, are always sore and tender to the touch; so that wailing, shaking, the friction of the clothes, &c. are somewhat painful. In its mildest severe form, this eruption nearly covers the face, breast, shoulders, and top of the back, but does not descend lower than an ordinary tippet in women: yet this limitation of the dis-
order is independent of the exposure of those parts; for it occurs equally in men and women. In a few instances in young men, an extensive eruption of acne indurata has been seen affecting these covered parts, while the face remained nearly free from it. By the successive rise and progress of the tumours, the whole surface, within the limits just men-
tioned, was spotted with the red and livid tubercles, inter-
mixed with the purple discolourations and depressions left by those which had subsided, and variegated with yellow sup-

purating points and small crusts, so that very little of the natural skin appeared. Sometimes the black puncta of the sebaceous ducts were likewise mixed with the vari and their sequelae.

Cure of Vari.—Vari being generally a local disease, the acne is to be treated chiefly by external applications. Except in females, indeed, this variety of the eruption seldom calls for the attention of medical men. The ancients agree in recommending a number of stimulant applications, with the view of discussing the "thick humours," which were supposed to constitute the vari. Lotions and liniments, containing vinegar and honey, sometimes combined with an emulsion of bitter almonds, and sometimes with turpentine, resin, myrrh, and other gums, or with alum, icap, and Cinamomum bark, or the bruised roots of the lily, cyclamen, narcissus, &c. were the substances which they principally employed. They were doublets corrected as to the principle, as a gentle stimulus to the skin is the most safe and effectual remedy. The apprehensions, which have been strongly ex-
pressed by the humoral pathologists, of producing internal disorder by the sudden repulsion, as it has been called, of these cutaneous eruptions, are not altogether hypothetical. Head-ache, and affections of the stomach, and bowels, have sometimes been thus produced, which have ceased on the reappearance of the eruption; but, on the whole, as far as our observance goes, this alternation of disease is less frequent and obvious in this form of acne, than in the pustular and crustose eruptions of the face and head.

The stimulant applications, which are most easily prepar-
tioned to the irritability of the tubercles, are lotions containing alcohol, which may be reduced or strengthened according to circumstances, by the addition of any distilled water. It is not easy to describe the appearances of the eruption, which indicate any certain degree of strength in the lotion; but a little observation will teach this discrimination.

If the tubercles are considerably inflamed, and a great number of them pustular, a dilute mixture will be re-
quiate; containing, for example, equal parts of spiritus tenius and of rofe or elder-flowet water. The effect of a very acid lotion, under such circumstances, is to multiply the pustules, to render many of them confluent, and to pro-
duce the formation of a crust of some extent, as well as to excite an inflammatory redness in the adjoining skin. A fluid increase of the inflammation, indeed, is sometimes oc-
casioned by the first applications of a weak stimulus; but this is of short duration, and the skin soon bears an aug-
mentation of the stimulant until at length the pure spirit is borne with advantage, as the inflammatory disposition subsides. Under the latter circumstances, even a consider-
able additional stimulus is often useful; such as from half a grain to a grain or more of the muricate of mercury, in each ounce of the spirit; or a drop or more of the liquor ja-
tafic, or of the muricate acid, in six ounces. Acetic acid, as recommended by the ancients, and the liquor com-
mon acetas, afford also an agreeable stimulant, in proper proportions. Sulphur yields a small portion of its substance to boiling water, poured upon it, and allowed to infuse for twelve or fourteen hours; a quart of water being added to about an ounce of broken sulphur. A lotion of this nature has been found advantageous in slight cases of acne simplex, and especially in removing the roughnesses and dimples of the face connected with it.

Connected with the eruption of vari, and often giving rise to them, is that appearance of black points on the face and neck, surrounded by a raised border of cuticle, to which the appellation of acne punctata was given.
by Dr. Willan. These are vulgarly considered as the extremities of small worms or grubs, because, when they are pellucid, a sort of worm-like appendage is found attached to them; but they are, in fact, only little plugs of concreted mucus or phlegmaceous matter, moulded in the small ducts of the cuticular glands into this vernacular form, the extremity of which is blackened by contact with the air. In consequence of this dilatation of their ducts, the glands themselves sometimes inflame, and form small tubercles, or varii, with the little black points upon their surface, which partially suppurate, as in the preceding species; but many of them remain stationary for a long period, without ever passing into the inflammatory state. Not unfrequently they are intermixed with a few varii, in which the puncta have not appeared.

The preceding varieties of the eruption of varii occur only in young persons, of either sex, from the period of puberty to the age of thirty or thirty-five, and principally in those of the faguide temperaments, and they are generally accompanied by good health, and are totally unconnected with any disorder, or with habits of intemperance; but there is another variety of this eruption, which does not occur till after the age of forty, which is always, except from strong hereditary tint, sympathetic of some diseaue of the digestive organs, or vifcera connected with them, and which therefore is not so easily cured, and is not even benefited by the fame local means which are so efficacious in the former species. This variety of the diseaue is the gutta rofea of medical authors, and the acme rofeae of Dr. Willan.

This eruption of varri, indeed, differs in its appearance very essentially from the preceding species. In addition to the eruption of small suppurating tubercles, there is also a shining redness, and an irregular granulated appearance of the skin of that part of the face which is affected, which is not the part usually occupied by the former species. The redness commonly appears first at the end of the nose, and afterwards spreads from both sides of the nose to the cheeks; the whole of which, however, it very seldom covers. In the commencement the redness is not uniformly vivid, but is paler in the morning, and readily increased to an intense scarlet after dinner, or at any time if a glass of wine or spirits be taken; or if the patient be heated by exercise, or by sitting near a fire. After some continuance in this state, the texture of the cuticle becomes gradually thickened, and its surface uneven or granulated, and variegated by reticulations of enlarged cutaneous veins, with smaller red lines stretching across the cheeks, and sometimes by the intermixture of small suppurating varri, which successively arise on different parts of the face. Where there is a strong hereditary predisposition, or by the constant immoderate use of wine and spirituous liquors, this diseaue may affect the greater part of the face, even the forehead and skin; but the nose especially, in such cases, becomes tumid, and of a fiery red colour: and, in advanced life, it sometimes enlarges to an immoderate size, the noftrils being dilated and patulous, or the ade slurred, as it were, and divided into separate lobes.

Little can be done in way of cure for this species of varri, the visceral or constitutional malady being the root of the disease; against which, of course, the remedies, both moral and physical, must be directed.

Varri, in Zoology, a name given to the maueuco, or lemur catiis of Linnaeus, with his tail marked with rings of black and white; it is about the size of a cat, and inhabits Madagascar and the neighbouring isles. The varri of Buffon is the ruffled maueuco of Pennant, the black maueuco of Edwards, and lemur candatus nigri, collaris barbato, of Linneus. It has orange-coloured irides; long hair round the sides of the head, standing out like a ruff; long tail; the colour wholly black, but sometimes white spotted with black; the feet black. It inhabits Madagascar; is very fierce in a wild state; and makes so violent a noise in the woods, that the noise of two may be eafily mistaken for that of a hundred; when tamed, gentle and good-natured. Pennant.

Varri, in Geography, a town of Hindoflan, in Concan; 25 miles N. of Goa.

VARIA, in Ancient Geography, a town of Hispania Citerior, on the Iberus, N.W. of Calagarius.

VARIA, Vico-Vario, a town of Italy, in the Sabine territory, but belonging to the Latins; situated on the Valerian way; 8 miles from Tibur, and 27 from Rome. It was also called Valeria.

Varia, in Zoology, a name by which some authors have called the leopard, or pardalis, from the beautiful variegations with which it is marked.

VARIABLE, in Geometry and Analytics, is a term applied by mathematicians to such quantities as either increase or diminish, according as some other quantity either increases or diminishes.

Thus, the semiordinates and absefles of an elliptis, &c. are variable quantities; because, if the one increase, the others increase likewise.

They are thus called, in contradifition to conflant, or given, or flable quantities; which are always the fame, though others change: as the semidiameter of a circle, which remains the fame, though the absefles and semiordinates increase.

Variable quantities are usually denoted by the laft letters of the alphabet, x, y. z.

Some authors, instead of variable and conflant quantities, use the terms fluent and flable quantities.

The infinitely small quantity by which a variable quantity is continually increasing or diminishing, is called the increment or decrement, or difference; and the velocity with which it increases or decreases at any given point, is called its fluxion; the calculation of which is the Subject of the new methodus differentialis, or doctrine of fluxions.

VARIABLE Wind. See Wind.

VARIAM, in Geography, a town of Perfa, in the province of Irak; 120 miles E. of Hamadan.

VARIANA, in Ancient Geography, a town of Lower Media, upon the route from Viminacium to Nisioedia, between Augufót and Valeriana. Anton. Itin.

VARIANÆ, a town of Pannonia, upon the route from Emona to Sirmium, between Sificia and Meneiane. Anton. Itin.

VARIANCE, Variantia, in Law, an alteration or change of condition in a person, or thing, after some former concern or tranfation therewith.
Thus, if the commonality of a town make a composition with a lord, and afterwards bailiffs be granted by the king to the same town, there, if the lord commence any suit for breach of the composition, he must vary from the word commonality, used in the composition, and use bailiffs and commonly. 

VARIANCE is also used for an alteration of something formerly laid in a plea: or where the declaration in a cause differs from the writ, or from the deed upon which it is grounded.

VARIATION of Quantities, in Algebra. See Changes and Combination.

VARIATION, in Astronomy. The variation of the moon, called by Bullialdus the reflection of her light, is the third inequality observed in the moon's motion; by which, when out of the quadratures, her true place differs from her place twice equated. See Place, Equation, &c.

Sir Isaac Newton takes the moon's variation to arise partly from the form of her orbit, which is an ellipsis; and partly from the inequality of the parts of space, which the moon describes in equal times, by a radius drawn to the earth.

To find the greatest variation, observe the moon's longitude in the octants; and, for the time of observation, compute the moon's place twice equated: the difference between the computed and the observed place is the greatest variation. Tycho makes the greatest variation 4° 30'; Kepler makes it 5°49'; Sir Isaac Newton makes the greatest variation, at a mean distance, between the sun and the earth, to be 35°16': at the other distances, the greatest variation is in a ratio compounded of the duplicate ratio of the time of the moon's synodical revolution directly, and the triplicate ratio of the distance of the sun from the earth inversely. And, therefore, in the sun's apogee, the greatest variation is 33°14', and in his perigee, 37°11'; provided that the excentricity of the sun be to the tranverse semidiameter of the orbit magnus, as 164 to 1000. Or, taking the mean motions of the moon from the sun, as they are stated in Dr. Halley's tables, and the greatest variation at the mean distance of the earth from the sun will be 35° 7', in the apogee of the sun 33° 27', and in his perigee 36° 51'. Phil. Nat. Prine. Math. prop. 29. lib. iii. apud Horsley's Newtoni Opera, vol. iii. pars. 4th ed.

VARIATION, in Geography, Navigation, &c. a term applied to the deviation of the magnetic needle, or compass, from the true north point, towards either east or west; called also the declination. The variation, or declination, of the needle, is properly defined, the angle which a magnetic needle, suspended at liberty, makes with the meridian line on a horizontal plane; or an arc of the horizon, comprehended between the true and the magnetic meridian.

In sea-language, the variation is usually called north-easting, or north-westing.

All magnetic bodies, we find, range themselves, in some degree, to the meridian; but it is rare that they fall in precisely with it: in one place they decline from the north to the east, and from the south to the west; and in another place, on the contrary, from the north to the west, and from the south to the east; and that too differently at different times.

The variation of the compass could not be long a feaver, after the invention of the compass itself: according to Ferdinand, the son of Columbus, in his life written in Spanish, and printed in Italian at Venice in 1571, affirms, that his father observed it on the 14th of September, 1492: though others seem to attribute the discovery of it to Sebastian Cabot, a Venetian, employed in the service of our king Henry VII. about the year 1500. And as this variation differs in different places, Gonzales d'Ovieda found there was none at the Azores; whence some geographers have thought fit in their maps to make their first meridian pass through one of these islands; it not being then known that the variation altered in time. See Gilbert de Magnete, Lond. 1600, p. 47; or Purchas's Pilgrims, Lond. 1625, book iii. fecl. 1. See Variation of the Magnet.

Various are the hypotheses framed to account for this extraordinary phenomenon; of which we shall mention some of the later, and more probable, only premising, that Mr. Robert Norman, the inventor of the dipping-needle (which fee), disputes against Cortés's notion, that the variation was caused by a point in the heavens, contending that it should be sought for in the earth, and proposes how to discover its place.

The first is that of Gilbert (De Magnete, lib. iv. p. 151, &c.) which is followed by Cabeus, &c.

This notion is, that it is the earth, or land, that draws the needle out of its meridian direction; and hence they argue, that the needle varied more or less, as it was more or less distant from any great continent; consequently, that if it were placed in the middle of an ocean, equally distant from equal tracks of land on each side, eastward and westward, it would not decline either to the one or the other, but point southly north and south. Thus they say, in the Azores islands, which are equally distant from Africa on the east, and America on the west, there is, in effect, found no variation: but as from the Azores you sail towards Africa, the needle begins to decline from the north to the east; and that still more and more, till you reach the shore.

If you still proceed eastward, the declination gradually diminishes again, by reason of the land left behind on the west, which continues to draw the needle.

The same holds till you arrive at a place where there are equal tracks of lands on each side; and there again there is no variation.

The observations of our navigators, in their first East India voyages, seemed to confirm this fable; as they proceeded towards the Cape of Good Hope the variation is still eastward; at length arriving at the Cape De las Aguillias, p. d. of the Needles, the meridian line, then dividing Africa into two equal parts, there is no variation at all; but as they proceeded farther, and leave the African coast on the west, the variation becomes westward.

But the misfortune is, the law does not hold universally; in effect, a great number of observations of the variations, in various parts, made and collected by Dr. Halley, overturn the whole theory.

Some, therefore, have recourse to the frame and compasses of the earth, considet-red as interwoven with rocks and strata, which being generally found to run towards the poles, the needle has been observed to have a general tendency that way; but which seldom going perfectly in the direction of the meridian, the needle, by consequence, has commonly a variation.

Others hold various parts of the earth to have various degrees of the magnetic virtue, as some are more intermixed with heterogeneous matters, which prevent the true action or effect of it, than others.

Others ascribe all to magnetic rocks and iron mines, which, affording more of the magnetic matter than other parts, draw the needle more.

Lastly, others imagine earthquakes, or high tides, to have disturbed and dislocated several considerable parts of the earth, and so changed the magnetic axis of the globe, which originally was the same with the axis of the globe itself.
VARIATION.

But still, that great phenomenon, the variation of the variation, i.e. the continual change of the declination in one and the same place, which the modern observations daily confirm, is not accountable for on any of these foundations, nor even is it consistent with them.

Dr. Hooke communicated to the Royal Society, in 1674, a theory of the subject, the substance of which is, that the magnet has its peculiar pole distant ten degrees from the pole of the earth, about which it moves, so as to make a revolution in 370 years; whereas the variation (he adds) has altered at about ten or ten minutes every year, and will probably continue to do so for some time, till it begins to become slower and slower, and will at length be stationary and retrograde, and in all probability may return. Birch's Hist. of the Royal Society, vol. iii. p. 131.

Dr. Halley, in the Philosophical Transactions, No. 148, invented a new theory, founded on a great number of observations, many of which were made expressly for the purpose by order of the government; but as they do not extend to a more recent date than about 1680, and as perpetual changes are going on in the variation of different places, the table of results of this learned philosopher is now of little use; we shall therefore, avail ourselves of the history of these changes, as published in a recent work on the variation of the compass by W. Bain, master in the royal navy; which contains much important information on this subject, and is deserving of the particular attention of every one engaged in the management and navigation of vessels.

At London, in 1580, the quantity of variation was found to be 11° 15' E.; in 1662, 6° E.; in 1634, 4° 5' E.; and in 1657, the needle coincided with the true poles of the world; so that a period of 87 years elapsed in changing the 11° 15' of easterly variation in that city to zero, or until the variation began to take a westerly direction. In 1672, the variation was 2° 30' W.; in 1725, 14° 1' W.; in 1747, 17° 40' W.; in 1780, 22° 41' W.; and in 1793, viz. 135 years after the time when the variation was zero, it was nearly 24° 35' W.; and it is still nearly the same.

At Paris, in 1550, the variation was 8° E.; and in 1660, the needle pointed to the true poles of the world; in 1681, the variation was 2° 2' W.; in 1706, 18° 20' W.; in 1804, 22° 20' W. Hence it follows, that whilst the variation was undergoing an annual change of 10° 4' during a period of 213 years in London, the yearly change at Paris during a term of 254 years was only 7° 10'.

At Dublin, in 1657, the needle coincided with the true poles of the world; and in 1791, the variation was 27° 23' W.; exceeding the variation observed at London by 3° or 4'; and, consequently, the annual change during 134 years, must have been about 12° 10'.

While the variation was undergoing this change at London, Paris, and Dublin; we find nearly a corresponding change at Cape Aguilhas, and at the Cape of Good Hope.

At the former of these places there was no variation in 1600, and in 1692, it amounted to 11° W. And at the Cape of Good Hope, in 1700, the variation was nearly 10° W.; and in 1791, it had increased to 24° 31' 52'' W.; so that during a period of 91 years, the annual change in the variation at this place, during a period of 194 years, has been at the rate of 7° 52'' E.

At Cape Comorin, in 1620, the variation was 14° 20' W.; in 1688, 7° 30'; in 1756, 0° 15' W.; and in 1816, there was still no variation at this place; therefore, during a period of 137 years, the mean annual change was 6° 17' W.; but this includes a term of 60 years, in which there appears to have been a very small change in the declination, viz. about 15'' annually.

The phenomena presented by the variation at Cape Horn and its vicinity, are extremely different from those observed at the Cape of Good Hope, Paris, and London.

In 1683, in S. lat. 57° 27', W. long. 57° 28', the variation was found to be 23° 10' E.; in 1775, in S. lat. 56° 27', W. long. 54°, the variation was 24° 23' E.; in 1876, in S. lat. 53° W. long. 50° 4; the variation was 22° 47' E. and in 1795, in S. lat. 57° W. long. 67°, the variation was exactly 23° E. Hence it follows, that during a period of 112 years, the variation near Cape Horn has neither increased nor diminished in a perceptible manner.

At Cambridge, in Massachusetts, in 1708, the variation was found to be 9° W.; and since that period, it has been diminishing at the rate of 1° 6' annually; whilst at Jamaica, Barbadoes, and Lima, the variation has undergone no change during a period of 140 years. In the northern hemisphere, in the parallel of Spitzbergen, Davis's Straits, Hudson's Bay, &c. the same quantity of variation appears to have existed during the space of 150 years. The quantity or variation from Cape Comorin eastward, towards Nicaragua islands, Java, Ceram, Anibouya, Timor, &c. is so very small, as to tend to induce navigators to advert to it in their calculations; and is subject to little or no change. It may, however, be worthy of remark, that 60 miles east from the coast of Coromandel, about the meridian of Madras, the variation changes from east to west; and the same local changes probably take place on the coasts of Chili, Peru, and Mexico. In 1724, from Valparayfo to Acapulco, a distance of 50° of latitude, the variation was very inconsiderable; for from the former of these places to Lima, it never exceeds 3° E.; and from Lima to the latter place, never more than 4° W.

The greatest variation that the author, from whom the preceding abstract has been made, is acquainted with, is that which has been observed between Cape Farewell and Labrador, in Hudson's Straits and Baffin's Bay. In N. lat. 52° W. long. 52°, it was found by the author above alluded to, to be 40° 10' 53'' W.; and as high as N. lat. 60°, in about the same longitude, it was found to be 50° or 52°; but he expresses some doubt whether this great excess of variation might not have been partially produced by the effects of local attraction.

In 1616, in N. lat. 78° W. long. 80° (Baffin's Bay), the variation was found to be 57° W.; and in 1757, N. lat. 62° W. long. 65°, the variation was 42° W.; and in the same year, in N. lat. 64°, W. long. 70°, the variation was 43° W.; and in all these high latitudes, the variation still continues nearly the same.

On the west side of America, in the same parallel of latitude as Davis's Straits, Cape Farewell, &c. we perceive the variation assuming another character, and seldom exceeding half the quantity found at the above-mentioned places.

In 1786, in N. lat. 53° W. long. 145° 21' from Paris, the variation was from 23° to 24° E.; and in the same year, in N. lat. 58° 35', W. long. 138°; it was 25° E.; and in Port des Francais, in N. lat. 56° 37', W. long. 147° 32'; the variation, as ascertained by the meridian line, amounted to 25° E.; in 1792, in N. lat. 52°, W. long. 129°; the variation was only 20° 41' E.; and in 1794, in N. lat. 61° 17', W. long. 149° 7', 20° 30' easterly variation was found the greatest quantity observed by Vancouver while on that coast.
VARIATION.

But of all the places on the globe with which we are acquainted, none exhibit such wonderful phenomena in the variation as the coasts of China, Corea, Tartary, Japan, and Kamtschatka northward.

In 1787, from Macao to N. lat. 41°. E. long. 136° from Paris, the quantity of westerly variation never exceeded 2°; and from this point to N. lat. 51°1/3°. E. long. 142°2/3°, where the variation was only 53° E., the quantity never exceeded 3°.

In 1804, in N. lat. 52°. E. long. 143° from Paris, there was no variation; 16° farther to the E., and 45° to the S., 5° 20' of westerly variation was observed; and in 1779, in N. lat. 69° 55'. E. long. 105° 14' (Bering's Straits), there was found 35° 37' w. variation.

From observations made between 1760 and 1779, there appeared three places or points on the globe where the change in the variation was much greater than elsewhere.

These were, first, in the middle of the Indian ocean, from 10° to 15° S. lat., and from 64° to 69° E. long., where the change was 11° and 11° 45'; secondly, in the Ethiopian sea, from 5° N., to 20° or 25° S. lat., and from 10° to 15° or 20° E. long., the change in the variation was about 10°; and thirdly, at 50° N. lat., and between 17° E. and 10° W. long., the change was nearly 11°. In these different places, the variation has since continued to increase at nearly the same rate.

During the same interval it was also ascertained, that there were four places or points on the globe where the variation has undergone no change.

These were, first, from the eastern point of Africa to the farthest of the Bermuda islands; secondly, the curious islands of the Medusa and part of Zanzibar; thirdly, that part of the ocean which is to the S. and E. of the Sunda islands, between them and New Holland; and fourthly, in the feral sea, about 4° S. lat., and 97° E. long., that is, in the middle of the fpace comprised between the western angle of New Holland and the southern point of Africa. In all these places, the variation did not vary perceptibly during 15 years. And it may be remarked, that observations made since the above period, have not shewn any change worthy of notice in its quantity at the above-mentioned places.

Some intelligent sea-officers are of opinion, that in the western part of the English Channel, the westerly variation has begun to decline, which others affirm, that the variation is still increasing in the Channel, and as far westward as W. long. 15°, in N. lat. 51°, at which place they say the variation amounts to 30° W. Neither of these opinions, however, can, according to Mr. Bain, be relied on as correct, though each may have been deduced from observation. If the head of the ship is on the right point of the compass at the time of observation, from 20° to 25° of variation will be observed; but on the other hand, if the ship's head is at the west, at the time of observation, the variation will amount to 30° or 33°.

The circumstance above alluded to, of the apparent variation being so much influenced by the local attraction of the ship, is certainly of the highest importance; and the means which Mr. Bain has adopted of making it generally known are highly laudable: at the same time, we cannot but feel considerable doubt, after this fact is once pointed out, of the accuracy of many of the observations stated in the preceding pages, as several of these were made by persons wholly unacquainted with such an influence, which seems to have been entirely unknown till Mr. Wales, the astronomer, who failed with Capt. Cook, first noticed the phenomenon; and his observations have been since confirmed by Capt. Flinders; and Mr. Bain, in the work we have above alluded to, has added many additional facts to those before known, and to which we shall have again occasion to refer; but in the first place, it will be proper to infer a general table of variations in different latitudes, as given in the Philosophical Transactions for 1757, with additional observations of the above authors.

It may not be amiss to add here, as belonging to the history of this subject, that we owe the first variation chart to Dr. Halley. Previously to this period he had collected, and made, a multitude of observations on the variation of the needle in many parts of the world, and was enabled to draw on a Mercator's chart, lines shewing the variation of the compass in the places through which they passed. But as the deviation of the magnetic meridian from the true one was then, as now, subject to continual alteration, this chart was soon found useless.

However, in 1744, Mountain and Dobson published a new variation chart, adapted to that year; which being well received, they published a second, adapted to 1756; and a third in the following year: the last we know of.

Nicholson strongly recommends the employment of the variation as a means of finding the longitude at sea; but navigators are long since convinced of its inadequacy. Vancouver, speaking of this subject, says, "This very able seaman, Nicholson, still wedded to formerly-adopted opinions, strongly recommends the variation of the compass as a means for ascertaining the longitude at sea; yet, had we been better provided, we might have searched for the Cape of Good Hope, agreeable to his propositions, to little effect; for when we were in lat. 35° 17' S., with 20° 16' W. variation, we had only reached the long. of 6° 30' W., and again, when in lat. 35° 22' S., with 22° 47' W. variation, we had only advanced to the long. of 11° 25', instead of being, according to Mr. Nicholson's hypothesis, in the first instance, nearly under the meridian of the Cape of Good Hope, and in the second, under that of Cape Agulhas; and it was not until we had nearly 26° W. variation, that we approached the meridian of the Cape of Good Hope. The observations for the variation were made with the greatest care and attention; and though generally considered as correct, they differed from one to three, and sometimes to four degrees; not only when made by different compasses, placed in different situations on board, and the ships on different tacks, but by the same compass in the same situation, and at moderate intervals of time; the difference in the results of such observations, at the same time, not preferring the least degree of uniformity. Hence the aberration amounts nearly to an absurdity, which fluctuates, at that with 20° to 20° 10', or 20° 30' westerly variation, you will be certain of such and such longitudes; and it is greatly to be feared, that navigators who rely on such means for ascertaining their situation in the ocean, will render themselves liable to errors that may be attended with the most fatal consequences."

A Table.
A Table exhibiting the Changes of Variation from the Year 1700, in the most frequented Seas.

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VARIATION.

Of the Curves of no Variation.—In the preceding part of this article, we have principally alluded to the variation east or west, at different times and in different places; but it is no less interesting to trace the curve in which no variation is observed. We have seen, that there are certain points in the northern and southern hemispheres where the needle points to the true poles of the world; these points, however, are not all situated on the same meridian, but form an irregular curve, influenced different ways, and in perpetual motion.

In the northern hemisphere, a curve of no variation moved from west to east during two centuries prior to 1662. This curve first passed the Azores, then the meridian of London, and, after a certain number of years, the meridian of Paris. But in the southern hemisphere, there was another curve of no variation moving from east to west. This curve first passed Cape Aguilhas, and then the Cape of Good Hope; the westerly variation following the easterly, the same as in the northern hemisphere, but in a contrary direction.

And from the observations that have since been made, it appears that the curve of no variation in the northern hemisphere, after passing the meridian of London and Paris, has discontinued its easterly progress; while the curve of no variation in the southern hemisphere, still continues its course north-westward.

The variation on the east side of the curve of no variation, which passed the point of Cape Aguilhas in 1600, and extended north and south to a high degree of latitude in both hemispheres, being westerly; and the curve which passed the meridian of London in 1662 being easterly; it follows, that the curve which passed London could not reach beyond the 18th degree of east longitude, as the denomination of the variation was the same eastward of that meridian in 1600 that it now is, namely, westerly. The exact point where the southerm curve of no variation passed the northern curve cannot be satisfactorily ascertained; but it is known, that while the northern curve passed London eastward, the southern curve passed westward in nearly the same longitude.

Dampier, in his voyage to the East Indies in 1669, found, that from 6° south latitude and 25° west longitude, to the point where the 37th degree of south latitude was intersected by the meridian of Greenwich, the variation was easterly, but never exceeding 10°; at which latter point the easterly variation was 0°; and thence became westerly, and continued to increase to 45° E. long., and 25° S. lat., where it appears to have attained its maximum; i.e. 25° or 26° W.; and from this point the variation gradually diminished, till it again assumed another denomination in S. lat. 10°, and E. long. 125°; and from this last point, as far north of the equator as 10°, the variation appears to have then been, as it still is, influenced by local attractions; the quantity being always small, sometimes easterly, and at other west.

Captain Cook, in 1772, in S. lat. 6°, and W. long. 106°, found 30° 30' westerly variation; and in S. lat. 24°, and W. long. 23° 51', found only 39' westerly variation. From this point the westerly variation gradually increased, as the southern latitude and easterly longitude augmented to 60° of easter longitude, and 60° of south latitude, where it attained its maximum; i.e. 45° 45' easter.

From this last point it rapidly decreased, and became easter in S. lat. 58° 35', and E. long. 142° 45'. But as the tract of D'Entrecasteaux, in 1791, nearly coincides with Dampier's in 1669, the change in the position of the curve of no variation, will be best illustrated by a comparison of their respective observations.

D'Entrecasteaux found the variation in S. lat. 6°, and W. long. 25°, to be 7° 15' easter; and in S. lat. 25°, and W. long. 25°, only 1° 50' easter; from which last point it again increased as the west longitude diminished, till the meridian of Greenwich intercepted the 33d degree of south latitude, where the variation was 15° easter; and it attained its maximum of 30° 48° 9' in S. lat. 34° 52', and E. long. 30° 14° 18' from Paris; and from hence, to S. lat. 44°, and W. long. 133°, the variation continued westerly, but it there changed and became easter.

The space between the two curves observed by Dampier in 1669, reached from the meridian of Greenwich to 130° E. long.; and the distance between them, according to D'Entrecasteaux, in 1791, must be 155°. Dampier having cut the curve in 80° E. long., and the other in 25° W. The curve of no variation must therefore have advanced from the westward annually about 16', in the parallel of 34° south latitude, to have shifted its place 25° in ninety-two years, and at a yearly rate of 14° 8', from the time it passed Cape Aguilhas in 1660 to 1791. This curve is now known to extend across the magnetic and terrestrial equators, to a point in N. lat. 37° 27', and W. long. 70° 44'.

From a comparison of the above results, and others drawn from the observations of captain Flinders, and the Russian navigator Krufenstern, it appears, that a curve of no variation bending westward, extends from the highest degree of southern latitude, in about 144° E. long., to 52° N. lat. in the same parallel, interfering the equator in 150° E. long.

Now from the observations of La Perouse and Krufenstern, the westerly variation ceased, and the curve of no variation terminated in about 52° N. lat., and 153° E. long., for the variation north-east of this point assumes another character; and 18° farther north, and 52° to the east, captain Cook found near 56° of easterly variation.

It appears also, from a comparison of observations made in Perisia and the frontiers of China by Schubert, with those of Peroufe, Krufenstern, and others, made on board his majesty's ship Sybille by Mr. Bain, that a curve of no variation again takes its rise in about 52° N. lat., and 143° E. long., and terminates a little east from Spitzbergen, extending in a direction nearly east by south, and west by north, through 67° 80 miles of longitude.

Biot, in speaking of this subject, says, "that a curve of no variation seems to take its rise in the great Southern ocean, passing through the western part of New Holland, traversing the Indian ocean, enters the continent of Asia at Cape Comorin, and thence passes through Perisia and West Siberia, and proceeds towards Lapland. But what is more remarkable, that line divides itself into two in the great Asian archipelago, and gives rise to another branch, which, pointing directly from the south to the north, passes that archipelago, traverses China, and is again found in Eastern Siberia. The existence of this branch, and its separation from the former, are clearly indicated by the observations made in the Chinese seas; but I am able to offer a still farther confirmation of it, by the observations made in Russia and the frontiers of China, by the celebrated astronomer Schubert, who has been kind enough to communicate them to me," which latter are the observations spoken of above.

We have seen that a curve of no variation, extending from 60° of south latitude to 52° of north latitude, in about 143° east longitude, but taking a small bend to the westward, is interfered by the meridian of Ambayona; and by comparing with each other different observations made by Mr. Wales, in his voyage with captain Cook, and those of Vancouver in 1791, and others made by sir Home Popham, and by Humboldt, it appears, that from the westerly part of the curve of no variation, found in about 130° east of the meridian of Greenwich, where the westerly changes to an easterly variation, to the meridian where the easterly variation

Vol. XXXVI.
VARIATION.

tion was found to terminate by captain Cook, S. lat. 58° 27', W. long. 13° 10', the distance east and west will be 210° 50'.

To the meridian of Pororou, S. lat. 20° 39', W. long. 28° 28', the distance is 201° 22'.

To the meridian of Vancouver, S. lat. 35° 40', W. long. 28°, the distance is 202°.

To the meridian of sir H. Poplham, S. lat. 30°, W. long. 26°, the distance is 204°.

To the meridian of Humboldt, N. lat. 15° 40', W. long. 79°, the distance (taking the mean) is 171°.

And if the curve of no variation extends to N. lat. 37° 27', W. long. 70° 40', the eaft-ward variation in that parallel will only measure 158° 16'.

These different distances point out, under different parallels of latitude, the direction in which the curve of no variation at present affumes; and we may perhaps conclude, that the variation of the magnetic needle is caused by two different and distinct systems of magnetic forces; the one producing a westerly variation in the northern hemisphere, over the space of 200° 44', and in the southern hemisphere, in the same parallel of latitude, of 14° 10'; and the other an eaft-ward variation in the northern hemisphere, over a space of 159° 10', and on the southerm, of 216° 50'.

From these facts it would seem, that the north end of the curve, which passed Cape Aguilas in 1600 north-eaftward, was in 1804, found to extend from S. lat. 60°, W. long. 13° 13', to N. lat. 37° 27', W. long. 70° 40', intersecting the 12th degree of north latitude, and the 218th, 30th, and 335th of south latitude; whence the mean rate of its motion is found to be 265 miles annually: but it is extremely probable, that the south end of this curve has during the same period remained stationary; and this difference in the direction of the two extremes of the curve in the southern hemisphere, may perhaps point out to us the reason why the quantity of variation should have continued the same off Cape Horn during 133 years, while at the Cape of Good Hope, Paris, and London, it should have increased 25° or 27° in the same period.

The curve of no variation which passed through London eaftward, about the same time the curve in the southern hemisphere passed the meridian of Greenwich eaftward, appears to have been loft among the smaller magnetic powers at present found in the continent of Europe and Asia.

The view which we have given of this perplexing subject, deduced from actual observation, renders it obvious that all attempts, by theory, to fix on charts the exact positions of the curves of no variation, or of lines of given variation, must prove, as they have always hitherto done, entirely abortive. There are indeed places in the world, such as Spitzbergen, Cape Horn, Chili, and Mexico, the great Aflan archipelago, the coast of Coromandel, Peru, Brazil, &c., where the curve of variation, and the variation itself, has not undergone any perceptible change since first observed; but we have good reasons to believe, that at all the above-mentioned places the variations are regulated by incidental magnetic attractions, which are lost or merged in the two great powers already deferred, at a little distance from their respective spheres. In all other places of the globe, it is continually undergoing a regular and progressive change; but it is impossible accurately to determine when this change may cease, or to foretell what quantity our present westerly variation may attain, though there is some reason to believe it has very nearly or entirely arrived at its maximum.

At present, we have spoken only of those great and in former measure continued changes in the variation which takes place, and become very obvious after a long period; but there are others of a more minute quantity, and of daily, and we might add of hourly occurrence, to which it will be proper to refer in the present article.

Mr. George Graham made several observations of this kind in the years 1722 and 1723, professing himself altogether ignorant of the cause of the variation which he observed. Phil. Trans. Nof. 383, or Abr. vol. vii. p. 290, &c.

About the year 1750, Mr. Wargentin, secretary of the Royal Academy of Sciences in Sweden, took notice both of the regular diurnal variation of the needle, and also of its being disturbed at the time of the auroa borealis, as record'd in the Phil. Trans. vol. xlvi. p. 126, &c.

About the year 1756, Mr. Canton commenced a series of observations, amounting to nearly 4000, with an excellent variation-compas, of about nine inches diameter. The number of days on which these observations were made was 603, and the diurnal variation on 574 of them was regular; i.e. the absolute variation of the needle eastward was increasing from about eight or nine o'clock in the morning till about one or two in the afternoon, when the needle became stationary for some time; after that, the absolute variation eastward was decreasing, and the needle came back again to its former situation, or near it, in the night, or by the next morning. The diurnal variation is irregular when the needle moves slowly eastward in the latter part of the morning, or westward in the latter part of the afternoon; also when it moves much either way after night, or suddenly both ways in a short time. These irregularities seldom happen more than once or twice in a month, and are always accompanied, as far as Mr. Canton observed, with an aurora borealis.

Mr. Canton lays down and evinces by experiment the following principle, viz. that the attractive power of the magnet (whether natural or artificial) will decrease while the magnet is heating, and increase while it is cooling. He then proceeds to account for both the regular and irregular variation. It is evident, he says, that the magnetic parts of the earth in the north on the east side, and the magnetic parts of the earth in the north on the west side of the magnetic meridian, equally attract the north end of the needle. If then the eastern magnetic parts are heated faster by the sun in the morning than the western, the needle will move eastward, and the absolute variation will increase; when the attracting parts of the earth on each side of the magnetic meridian have the heat increasing equally, the needle will be stationary, and the absolute variation will then be greatest; but when the western magnetic parts are either heating faster, or cooling faster than the eastern, the needle will move eastward, or the absolute variation will decrease; and when the eastern and western magnetic parts are cooling equally fast, the needle will again be stationary, and the absolute variation will then be least.

By this theory, the diurnal variation in the summer ought to exceed that in winter; and accordingly it is found by observation, that the diurnal variation in the months of June and July is almost double that of December and January.

The irregular diurnal variation must arise from some other cause than that of heat communicated by the sun; and here Mr. Canton had recourse to subterranean heat, which is generated without any regularity as to time, and which will, when it happens in the north, affect the attractive power of the magnetic parts of the earth on the north end of the needle. That the air nearest the earth will be most warmed by the heat of it, is obvious; and this has been frequently taken notice of in the morning, before day, by means of thermometers at different distances from the ground. Phil. Trans. vol. xlvi. p. 526.

Mr. Canton has annexed to his paper on this subject a complete
complete year's observation; from which it appears that the
durnal variation increases from January to June, and
decreases from June to December. Phil. Tran. vol. li. p. 398, &c.

It has also been observed, that different needles, especially
if touched with different load-fores, will differ a few min-
utes in their variation. See Poleni Epift. Phil. Tran. N° 421.

We shall here subjoin a method practised by M. Du Hamel,
who was one of those who attempted, and succeeded in the
preparation of artificial magnets, for enlarging the scale of
the variation. At each extremity of the needle, composed
of two magnetic bars, and which is fourteen inches long, a
slender pointed piece of steel is erected perpendicularly; and
at the distance of fifty-two feet, in the direction of the
needle, he has placed on two pillars, and in a line perpendi-
cular to that direction, a graduated limb six feet long; being
a segment of a supposed circle, described from the centre
on which the needle turns. The observer, placing himself so
as to bring the two pieces of steel at the extremities of the
bar into a line with the eye, observes where that line pro-
longed, or the vital ray, points to the graduated arc. As,
at this distance, each of these degrees measures a foot, the
true direction of the needle is ascertained with the greatest
precision; and left the observer's eyes may not be good
enough to enable him to see distinctly the particular divisions
at that distance, an affistant occasionally moves a certain in-
dex, conformably to his direction. Hift. de l'Acad. Roy.

On the Effét of the local Attraction of the Ship upon the
Variation of the Needle.—We have already had occasion to
notice the necessity of attending to the direction of the ship's
head, in observations made on ship-board relative to the
direction of the compais; and that this may have a very
sensible effect will appear very obvious, when we recollect
the quantity of iron with which a ship of war, in particular,
is generally loaded; and that this is mostly forward, while the
compais is generally aft. The great attraction between the
iron and the needle is generally known; and consequently,
if we could imagine the magnetic power of the earth to
be equal entirely, we should have no difficulty in conceiving
that the attraction of the guns, &c. would incline the needle
to assume a direction coinciding with that of the vessel;
and consequently, when the magnetic meridian and the direc-
tion of the ship are the same, that, when the vessel lies north
and south, both forces acting in the same manner, the po-
tion of the needle will be the same as if no such local
attraction existed. But if the ship's head is put over to the
east or the west, then the local attraction of the ship will in-
cline the needle to the east and west, while the terrestri-
al attraction will draw it towards the north; and it will, there-
fore, assume a direction which corresponds with the re-
Sultant of these two distinct forces: and we may observe,
that the direction of this resultant would furnish, if well ob-
erved, most important data towards determining the inten-
sity of this mysterious power.

Simple and obvious as this idea is, it does not appear to
have been formed till Mr. Wals, the astronomer in captain
Cook's voyages, was struck with certain irregularities,
which he could in no way at first account for, and of which
we have the following account in the Introduction to the
astronomical observations in the Second Voyage.

"In the English Channel, the extremes of the observed
variation were from 19° to 25°; and all the way to the
Cape of Good Hope, I had frequently observed differences
nearly as great, without being able in any way to account
for them; the difference in the situation being by no means
sufficient. These irregularities continued after leaving the
Cape, which at length put me upon examining into the cir-
cumstances under which they were made. In this examina-
tion it soon appeared, that when most of these observations
were made, wherein the greatest variation had happened,
the ship's head was north and easterly; and that when those
where it was the least had been taken, it was south and
westerly. I mentioned this to captain Cook, and some of
the officers, who did not at first seem to think much of it;
but as opportunities happened, some observations were made
under those circumstances, and very much contributed to con-
firm my suspicions; and throughout the whole voyage,
I had good reason to believe that variations observed, with
the ship's head in different positions, and even in different parts
of her, will differ very materially from one another, and
much more will observations made on board different ships,
which I now find fully verified, on comparing those made
on board the Adventure with my own, made about the same

time in the Resolution."

Mr. Wales again recur to this subject, in the course of
his astronomical observations made in Cook's third voyage,
and points out the quantity of the deviation in several cases;
but the true cause of these anomalies does not appear to have
been sufficiently explained by this able astronomer: he merely
lates the irregularities, but offers no explanation of them.
Nor does it appear that they were afterwards particularly noticed by any nav-
igator, till captain Bligh's attention was called to the sub-
ject in the early part of his last voyage. Here that experienced
navigator found such unaccountable differences in the quanti-
ty of variation, deduced from the different observations
he occasionally made, that he determined on instituting an
inquiry into their causes; and, if possible, to ascertain the
laws by which they were regulated.

"Several influences," he observes, "have been mentioned in
the course of this voyage, where the compas shewed a
different variation, on being removed from one part of the
ship to another. Thus, observations on the binnacle gave
29° off the Start, where the true variation was 25°; whilst
others taken from the bow presented the main-mast, 65 miles
lower down the Channel, gave only 24°; and in the
experiments made with five compas, the mean variation
on the binnacle was 4° 37' greater than on the
booms.

"It soon became evident, however, that keeping the
compas to one spot was not alone sufficient to secure ac-
curacy: a change in the direction of the ship's head was also
found to make a difference in the needle; and it was neces-
sary to ascertain the nature and proportional quantity of this
difference, before a remedy could be applied. This inquiry
was attended with many difficulties, and no satisfactory con-
clusion could be drawn, until a greater variety of observa-
tions was collected. It then appeared, that when the
ship's head was on the easter side of the meridians, the dif-
fferences were mostly one way: and when on the west side,
they were the contrary; whence I judged that the iron in the
ship had an attraction on the needle, which drew it forward.
But there was this remarkable distinction: in the northern
hemisphere, it was the north end of the needle which was
attracted; and in the southern hemisphere, it was the south
end. In the influences off the Start, before cited, when the
ship's head was west, the north end of the needle had been
drawn forward, or to the left of the north, nearly 4°, and
the west variation thereby increased to 29°; with the head
at east, it would be drawn to the right of its natural position,
and the variation diminished to about 24°; but at north,
the attraction of the ship was in the same line with the mag-
netic poles of the earth, and would, therefore, produce no

charge.
VARIATION.

The same thing took place at south, for the two attractions were still in the same continued line, though on opposite sides of the compass; and throughout the voyage, I found the variation, taken with the head at north and south, agreed very nearly in themselves, and with the observations themselves near the same place, when such observations were not affected by local attractions."

The following table contains a few of the instances, where the change in the variation was observed by captain Flinders.

Table of Variations observed in a Voyage of Discovery to Terra Australis, in 1801 and 1802, by Captain Flinders, in His Majesty's Ship Investigator.

<table>
<thead>
<tr>
<th>Time</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Ship's Head</th>
<th>Variation</th>
<th>Difference</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>D. M.</td>
<td>D. M.</td>
<td></td>
<td></td>
<td>D. M.</td>
<td>D. M.</td>
<td></td>
</tr>
<tr>
<td>1802</td>
<td></td>
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<tr>
<td>D. M.</td>
<td>D. M.</td>
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<td>D. M.</td>
<td>D. M.</td>
<td></td>
</tr>
</tbody>
</table>

After various other observations, and much examination, (for the needle was not always deflected the same quantity, when the position of the ship was the same,) captain Flinders found that the errors had a close connection with the dip. When the north end of the needle had dipped, it was the north point of the compass that had been attracted by the iron of the ship; and as that dip diminished, so had the attraction, until at the magnetic equator; where the dipping-needle stands horizontal, there seemed to have been no attraction; and, upon the whole, it seemed probable that "the error produced at any direction of the ship's head would be to the error at east or west, at the same dip, as the sine of the angle between the ship's head and the magnetic meridian was to the sine of eight points or radius."

After captain Flinders's arrival in England, he made application to the lords commissioners of the Admiralty to have experiments tried on board some of his majesty's ships, that the observations made during his voyage might be verified; and a series of observations was accordingly made on board five different ships at Sheerness and Portsmouth, which fully established the accuracy of his former conclusions.

Should this rule, upon farther trial, be found to answer under all circumstances, we must consider it as a most important acquisition to our present knowledge of navigation; but those who with fully to appreciate all the consequences of this discovery, should consult Bain's treatise on the "Variation of the Compass," to which work we have been much indebted in the composition of this article, and where they will find every information of a practical kind connected with the subject.

Theory of the Variation of the Needle.—Dr. Halley, as we have already stated, was the first who attempted any theory relative to the variation of the compass; and from the observations which he collected, many of which are included in our preceding remarks, he conceived "that the whole globe of the earth is one great magnet, having four magnetic
metrical poles, or points of attraction; near each pole of the
equator two; and that in those parts of the world which lie
nearly adjacent to any one of these magnetic poles, the
needle is governed thereby; the nearest pole being always
predominant over the more remote."

The pole which at present is nearest to us, he conjectures
to lie in or near the meridian of the Land's-End of England,
and not above 70° from the Arctic pole; by this pole the
variations in all Europe and Tartary, and the North sea,
are principally governed; though still with some regard to
the other northern pole, whose situation is in the meridian
taking about the middle of California, and about 15° from
the south pole of the world, to which the needle has chiefly
respect in all North America, and in the two oceans on
either side thereof; from the Azores, westwards, to Japan,
and farther.

The two southern poles, he imagines, are rather farther
distant from the south pole of the world; the one about 16°,
in a meridian 20° to the westward of Magellan's straits, or
95° west from London; this commands the needle in all
South America, in the Pacific sea, and the greatest part of
the Ethiopian ocean. The other seems to have the greatest
power, and the largest domain of all, as it is the most remote
from the pole of the world, being distant from it little
less than 20°, in the meridian which passes through New
Holland, and the island Celebes, about 120° east from
London; this pole is predominant in the south part of
Africa, in Arabia, and the Red sea, in Perla, India, and
its islands, and all over the Indian sea, from the Cape of
Good Hope eastwards, to the middle of the Great South
sea that divides Asia from America.

Such appears to have been the disposition of the magnetic
attraction in the time of Dr. Halley; and from these data
this author draws the following conclusions; viz.
1. Then, it is plain that, as our European north pole is
in the meridian of the Land's-End of England, all places
more easterly than that will have it on the west side of
the meridian; and, consequently, the needle, respectful to it
with its northern point, will have a westerly variation, which
will still be greater as you go to the eastern, till you come to
some meridian of Russia, where it will be the greatest, and
from thence will decrease again. Accordingly, in fact, we
find, that at Brest the variation is but 12°; at London, 45°
in 1683; and at Dantzic, 72° west. Again, to the westward
of the meridian of the Land's-End, the needle ought
to have a more easterly variation, were it not that, by approaching
the American northern pole, (which lies on the west
side of the meridian, and seems to be of greater force than
this other,) the needle is drawn thereby westward, so as
to counterbalance the direction given by the European pole,
and to make a small west variation in the meridian of the
Land's-End itself. Yet, about the ile of Tercera, it is
supposed our nearest pole may so far prevail as to give the
needle a little turn to the easterly, though but for a very little
space; the counterbalance of those two poles admitting no
considerable variation in all the eastern parts of the Atlantic
ocean, nor upon the west coasts of England and Ireland,
France, Spain, and Barbary. But to the westward of the
Azores, the powers of the American pole overcoming that
of the European, the needle has chiefly respect to this, and
turns more and more towards it as we approach it.

Whence it happens, that on the coast of Virginia, New
England, Newfoundland, and in Hudson's straits, the
variation is westward, that is, it decreases as you go from
thence towards Europe; and that it is lefs in Virginia and
New England than in Newfoundland and Hudson's straits.

2. This westerly variation, again, decreases as you pass
over North America; and about the meridian of the middle
of California, the needle again points due north; and from
thence westward to Yedo and Japan, it is supposed the
variation is easterly, and half-deer, not less than 15°; and
that this east variation extends over Japan, Yedo, Tartary,
and part of China, till it meets with the westerly, which is
governed by the European north pole, and which is
the greatest somewhere in Russia.

3. Towards the south pole the effect is much the same,
only that here the south point of the needle is attracted.
Whence it will follow, that the variation on the coast of
Brazil, at the river of Plate, and so on to the straits of
Magellan, should be easterly, if we suppose a magnetic pole
situated about 20° more westerly than the straits of
Magellan. And this easterly variation extends easterly
over the greatest part of the Ethiopian sea, till it be counter-
poised by the virtue of the other southern pole, as it is about
mid-way between the Cape of Good Hope and the isles of
Trind d'Alcunha.

4. From thence eastwards, the African south pole be-
coming prevalent, and the south point of the needle being
attracted thereby, there arises a west variation, very great
in quantity and extent, because of the great distance of this
magnetical pole from the pole of the world. Hence it is,
that in all the Indian sea, as far as Hollandia Nova, and
further, there is constantly a west variation; and that, under
the equator itself, it rises to no less than 11°, where it is
most. And that, about the meridian of the island of Cele-
bes, being likewise that of this pole, this westerly variation
ceases, and an easterly one begins, which reaches to the
middle of the South sea, between Zelandia Nova and Chili,
leaving room for a small west variation, governed by the
American south pole.

5. From the whole it appears, that the direction of the
needle, in the temperate and frigid zones, depends chiefly
upon the counterpoise of the forces of the magnetic poles
of the same nature; as also why, under the same meridian,
the variation should be in one place 20° west, and in an-
other 20° east.

6. In the torrid zone, and particularly under the equi-
nocitial, respect must be had to all four poles, and their
positions must be well considered, otherwise it will not be
easy to determine what the variation shall be, the nearest
pole being always strongest; yet not so as to be counter-
balanced, sometimes, by the united forces of two more
remote. Thus, in falling from St. Helena, by the isle of
Ascension, to the equator, on the north-west course,
the variation is very little easterly, and in that whole tract
is unalterable; because the South American pole, (which is
considerably the nearest in the aforesaid places,) requiring
a great easterly variation, is counterpoised by the contrary
attraction of the North American and the Asiatic south
poles; each of which, finely, is, in these parts, weaker than
the American south pole; and upon the north-west course,
the distance from this latter is very little varied; and as
you recede from the Asiatic south pole, the balance is still
preferred by an access towards the North American pole.
In this case, no notice is taken of the European north pole;
its meridians being a little removed from those of these
places, and of itself requiring the same variations which we
have hitherto found.

After the same manner may the variations in other places,
under and near the equator, be accounted for, upon Dr.
Halley's hypothesis. But in order to account for the
variation of the variation, it was observed, that from many
of the observed phenomena, it seemed to follow that all the magnetic poles have a
motion
VARIATION.

motion westward; but if it be so, it is evident that it is not a variation about the axis of the earth; for then the variations would continue the same in the same parallel of latitude (the longitude only changed), as much as the motion of the magnetic poles; but the contrary is found by experience; for there is no where, in the latitude of $51^\circ$ north, between England and America, a variation of $11^\circ$ east, at this time; as it was once here at London. Wherefore it seems, that our European pole is become nearer the Arctic pole than it was heretofore; or else, that it has lost part of its virtue.

But whether these magnetic poles move altogether with one motion, or with several; whether equally, or unequally; whether circular, or libratory; if circular, about what centre; if libratory, after what manner; are things yet unknown.

This theory seems yet somewhat obscure and defective; to suppute four poles in one magnetic globe, in order to account for the variation, is a little unnatural; but to conceive these poles to move, and that by such laws as to solve the variation of the variation, is still more extraordinary. In effect, the solution appears not much less implicit and arbitrary in the problem.

The learned author of the theory, therefore, found himself under a necessity to solve the phenomena of his solution; and with this view, he presented the following hypothesis. The external parts of the globe he considers as the shell, and the internal as a nucleus, or inner globe; and between the two, he conceives a fluid medium. That inner earth, having the same common centre and axis of diurnal rotation, may turn about with our earth each twenty-four hours. Only the outer sphere having its turbinating motion some small matter either swifter or slower than the internal ball; and a very minute difference in length of time, by many repetitions, becoming sensible; the internal parts will, by degrees, recede from the external; and not keeping pace with one another, they will appear gradually to move either callward or westward, by the difference of their motions.

Now, suppute such an internal sphere, having such a motion, the two great difficulties in the former hypotheses are easily solved; for if this external shell of earth be a magnet, having its poles at a distance from the poles of diurnal rotation, and if the internal nucleus be likewise a magnet, having its poles in two other places, distant also from the axis; and these latter, by a gradual and slow motion, change their place in respect of the external, we may then give a reasonable account of the four magnetic poles aforesaid, as likewise of the changes of the needle's variation.

The period of its motion being wonderfully great, and there being hardly a hundred years since these variations have been duly observed, it will be very hard to bring this hypothesis to a calculus; especially since, though the variations do increase and decrease regularly in the same place, yet in different places at no great distance, there are found such casual changes thereof, as can no ways be accounted for by a regular hypothesis; but seem to depend upon the unequal and irregular distribution of the magmatic matter within the substance of the external shell, or coat of the earth, which deflect the needle from the position it would acquire from the effect of the general magnetism of the globe. Of which the variations at London and Paris give a notable instance; for the needle has been continually about $14^\circ$ more eastward at Paris than at London; though it be certain that, according to the general effect, the difference ought to be the contrary way; notwithstanding which, the variations, in both places, do change alike.

Hence, and from some other things of like nature, it seems plain, that the two poles of the external globe are fixed in the earth: and that if the needle were wholly governed by them, the variations thereof would be always the same, with some irregularities, upon the account just now mentioned. But the internal sphere having such a gradual translation of its poles does influence the needle, and direct it variously, according to the result of the attractive or directive power of each pole, and, consequentially, there must be a period of the revolution of this internal ball, after which the variations will return again as before. But if it shall in future ages be observed otherwise, we must then conclude that there are more of these internal spheres, and more magnetic poles, than four; which, at present, we have not a sufficient number of observations to determine, and particularly in that vast Mar de Zur, or South sea, which occupies to great a part of the whole surface of the earth.

If, then, two of the poles be fixed, and two moveable, it remains to ascertain which they are that keep their place.

The author thinks it may be safely determined, that our European north pole is the moveable one of the two northern poles, and that which has chiefly influenced the variations in these parts of the world; for, in Hadlon's Bay, which is under the direction of the American pole, the change is not observed to be near so fall as in these parts of Europe, though the pole be much farther removed from the axis. As to the south poles, he takes the Asiatic pole to be fixed, and, consequently, the American pole to move.

This granted, it is plain that the fixed poles are the poles of this external shell, or cortex, of the earth; and the other the poles of the magnetic nucleus, included and moveable within the other. It likewise follows, that this motion is westwards, and, by consequence, that the aforesaid nucleus has not precisely attained the same degree of velocity with the external parts in their diurnal revolution; but so very nearly equals it, that, in $565$ revolutions, the difference is scarcely sensible. That there is any difference of this kind arises, hence, that the impulse by which the diurnal motion was imprest upon the earth, was given to the external parts; and from thence, in time, communicated to the internal; but not so as yet perfectly to equal the velocity of the first motion imprest upon, and still conferred by, the internal poles. As to the consequence, we shall reserve it.

As to the precise period, we want observations to determine it, though the author thinks we may, with some reason, conjecture, that the American pole has moved westward $46^\circ$ in ninety years, and that the whole period thereof is performed in about seven hundred years.

Mr. Whilton, in his "New Law of Magnetism," raises several objections against this theory. See Magnetism.

M. Euler, the son of the celebrated geometrician of that name, has also controverted and cenfrued the above theory; he thinks that two magnetic poles placed on the surface of the earth will sufficiently account for the variation; and he then endeavours to shew, how we may determine the declination of the needle, at any time, and on every part of the globe, from this hypothesis. But we must refer for the particulars of this reasoning to the Histoire de l'Academie Royale des Sciences et Bellles Lettres of Berlin, for 1757.

Various other theories have been suggested by later authors; but most of these have been already alluded to under our articles Magnetism, Dipping-Needle, &c. We shall, therefore, here conclude this article, by referring the reader for a more minute account of the various theories, particularly that of Coulomb, to Haîry's "Elementary Treatise on Natural Philosophy," translated by Gregory, and to the first chapter of the third volume of Dott's "Traité de Physique."
VARIATION.

Variation or Declination of the Needle. To observe the—

Draw a meridian line, as directed under Meridian, then, a style being erected in the middle of it, place a needle thereon, and draw the right line which it hangs over. This will the quantity of the variation appear.

Or thus: as the former method of finding the declination cannot be applied at sea, others have been thought of, the principal of which follow: suspend a thread and plummet over the compasses, till the shadow paseth through the centre of the card; observe the rhumb, or point of the compasses, which the shadow toucheth when it is the shortest. For the shadow is then a meridian line; consequently the variation is shown.

Or thus: observe the rhumb in which the sun, or some star, rises and sets; bisect the arc intercepted between the rising and setting; the line of bisecting will be the meridian line; consequently the declination is had as before. The same may be had from two equal altitudes of the same star, observed either by day or night.

Or thus: observe the rhumb in which the sun, or a star, rises and sets; and from the latitude of the place find the eastern or western amplitude, for the difference between the amplitude, and the distance of the rhumb observed, from the eastern rhumb of the card, is the variation fought.

Or thus: observe the altitude of the sun, or some star, and the sun, S 1 (Plate II. Navigation, fig.) whose declination is known; and note the rhumb in the compass to which it then corresponds. Since, then, in the triangle ZPS, we have three sides; viz. PZ, the complement of the elevation of the pole PR; SP, the complement of the declination DS; and ZS, the complement of the altitude SI; the angle PZS is found by spherical trigonometry; the contiguous one to which, viz. A Z S, measures the azimuth HI. The difference, then, between the azimuth, and the distance of the rhumb observed from the south, is the variation fought. See Azimuth Compass.

Note, to have the eastern or western amplitude accurately, regard must be had to the refraction. See Refraction.

For the more commodious observing in what rhumb of the compass the sun, or a star, is seen, it will be proper to have two little apertures, or glass windows, opposite to each other, under the limb of it, with a telescope-fight fitted to one of them, and to the other a fine thread.

The use of the variation is to correct the courses a ship has feared by the compasses: e.g. given the course and the variation of the compasses, and let it be required to find the true course the ship fleaves: if the variation is west, call the N.W. quarter the 1st, the S.W. the 2d, the S.E. the 3d, and the N.E. the 4th; but if the variation be east, call the N.E. quarter the 1st, the S.E. the 2d, the S.W. the 3d, and the N.W. the 4th. Then, if the course be set in the 1st or 3d quarters, add the variation to the points or degrees in the given course; but if in the 2d or 4th quarters, subtract, and the sum, in the former, or the difference in the latter case, will be the course corrected by the variation.

Variation of Curvature, in Geometry, is used for that inequality, or change, which happens in the curvature of all curves, except the circle. And this variation or inequality constitutes the quality of the curvature of any line.

Sir Isaac Newton makes the index of the inequality or variation of curvature, to be the ratio of the fluxion of the radius of curvature to the fluxion of the curve: and Mr. Macaulin, to avoid the perplexity that different notions, connected with the same terms, occasion to learners, has adopted the fame definition; but he suggests, that this ratio gives rather the variation of the ray of curvature, and that it might have been proper to have measured the variation of curvature rather by the ratio of the fluxion of the curve itself to the fluxion of the curve; so that the curvature being inversely as the radius of curvature, and, consequently, its fluxion as the fluxion of the radius itself directly, and the square of the radius inversely, its variation would have been directly as the measure of it, according to Sir Isaac Newton's definition, and inversely as the square of the radius of curvature.

According to this notion, it would have been measured by the angle of contact contained by the curve and circle of curvature, in the same manner as the curvature itself is measured by the angle of contact contained by the curve and tangent. The reason of this remark may appear from this example. The variation of curvature, according to Sir Isaac Newton's explication, is uniform in the logarithmic spiral, the fluxion of the radius of curvature in this figure being always in the same ratio to the fluxion of the curve; and yet, while the spiral is produced, though its curvature decreases, it never vanishes, which must appear a strange paradox to those who do not attend to the import of Sir Isaac's definition. Newton's Meth. of Flux. and Inf. Series, p. 76. Macaulin's Fluxions, art. 386. Phil. Trans. N° 468. sect. 6. p. 342.

The variation of curvature at any point of a conic section, is always as the tangent of the angle contained by the diameter that passes through the point of contact, and the perpendicular to the curve at the same point, or to the angle formed by the diameter of the section, and of the circle of curvature. Hence the variation of curvature vanishes at the extremities of either axis, and is greatest when the acute angle, contained by the diameter, passing through the point of contact and the tangent, is leaft.

When the conic section is a parabola, the variation is as the tangent of the angle, contained by the right line drawn from the point of contact to the focus, and the perpendicular to the curve. See Curve.

Variation of Ratios. In the investigations of the relation which varying and dependent quantities bear to each other, conclusions are frequently more readily obtained by expressing only two terms in each proportion, than by retaining the four. But although in considering the variation of such quantities two terms only are expressed, it will be necessary to bear constantly in mind that four are supponed, who will lead the operations by which our conclusions are in this case obtained, are in reality the operations of four proportions.

1. One quantity is said to vary directly as another, when their magnitudes depend wholly upon each other, and in such a manner, that if the one be changed, the other is changed in the same proportion; thus, let A and B be mutually dependent upon each other in such a way, that if A changes to any other value a, B is changed to another value b, such that A : a :: B : b; then A is said to vary directly as B, which is denoted by the symbol of general proportion ∞ placed between the two quantities. Thus, for example, while the latitude of a triangle remains constant, the area varies directly as the base, or the area ∞ base; or for the base be increased or diminished, the area is increased or diminished in the same proportion.

2. One quantity is said to vary inversely as another, when it cannot be changed in any manner, but the reciprocal of the other is changed in the same proportion. A varies inversely as B, or A ∞ 1/B, if when A is changed
to \(a\), \(B\) is changed to \(b\), in such a manner, that
\[
A : a = \frac{1}{b} ; \quad \text{or} \quad A : a = b : B.
\]

For example, if the area of a triangle be given, the base varies inversely as the perpendicular altitude; for let \(A\) and \(a\) represent the altitude of two triangles of equal areas, and \(B\) and \(b\) their two bases; then
\[
\frac{A \times B}{2} = \frac{a \times b}{2} ; \quad \text{or} \quad A \times B = a \times b ;
\]
therefore,
\[
A : a = b : B ; \quad \text{or} \quad A : a = \frac{1}{b} = \frac{1}{B}.
\]

3. One quantity is said to vary as two others *jointly*, if, when the former is changed in any manner, the product of the two quantities is changed in the same proportion: that is, \(A\) varies as \(B\) and \(C\) jointly, or \(A \propto BC\), when \(A\) cannot be changed to \(a\), but \(BC\) is changed to \(bc\), such that
\[
A : a = BC : bc.
\]
The area of a triangle, for example, varies as the base and altitude jointly; for let \(A\), \(P\), \(B\), represent the area, perpendicular, and base of one triangle, and \(a\), \(p\), \(b\), the corresponding quantities in another; we know that
\[
A = \frac{1}{2} PB, \quad \text{and} \quad a = \frac{1}{2} pb ; \quad \text{consequently} \quad A = \frac{pB}{a},
\]
or \(A : a = PB : p\).

4. One quantity is said to vary *directly* as a second, and inversely as a third, when the first cannot be changed in any manner; but that the second, multiplied by the reciprocal of the third, is changed in the same proportion. That is, \(A\) varies as \(\frac{B}{C}\), or \(A \propto \frac{B}{C}\), when \(A : a = \frac{B}{C} ; \quad A, B, C, \text{and} \ a, b, c\), being corresponding values of these quantities.

For example, the base of a triangle varies as the area directly, and as the altitude inversely; for as in the preceding example,
\[
\frac{PB}{a} = \frac{A}{p} ;
\]
we multiply both sides by \(P\), we have \(\frac{B}{a} = \frac{pA}{Pa}\), whence \(B : a = \frac{a}{P} : \frac{p}{P}\).

The following are some of the principal propositions relating to the ratio of variable quantities.

If \(A \propto B\), and \(B \propto C\); then \(A \propto C\).
If \(A \propto B\), and \(B \propto C\); then \(A \propto C\).
If \(A \propto B\), and \(B \propto C\); then \(A \propto BC\).
If \(A \propto B\), and \(a \propto B\); or \(A \propto B\).
If \(A \propto a\), and \(M \propto m\); then \(A \propto a\).
If \(A \propto BC\); then \(B \propto AC\), and \(C \propto B\).
If \(A \propto B\), and \(C \propto D\); then \(A \propto B\).

Wood's Algebra.

Variation, Calculus of, is a department of the modern analysis, which we owe, as a distinct branch, to the inventive genius of Lagrange, who published his first memoir on this subject in the second volume of the Transactions of the Academy of Sciences at Turin, in 1762; and his second memoir, published in the fourth volume of the same Transactions, in 1770, gave to this theory a perfection and generalization far beyond what it was supposed capable of possi-

This method was also in the interval illustrated in the most simple and elementary manner by the celebrated Euler, in the Memoirs of the Academy of Sciences at Petersburg for 1764, as it was afterwards in the third volume of his Calcul Integral, and again in the Acta Petro-}

for 1771. Since that time it has been treated of by different authors at greater or less extent; and to Mr. Woodhouse, of Cambridge, we are indebted for a very neat little volume, in which this subject is handled in a very clear and conspicuous manner, from which work we have already given a few extracts under the article Isoperimetry. Boffut, also, in vol. ii. of his "Traités de Calcul Différentiel et de Calcul Intégral," has a very perpicious chapter on the calculus of variations, of which we shall avail ourselves in the present influence.

Let there be any indefinite expression or function compounded of variable and constant quantities, which changes its value by the increase or diminution of one or more of the elements which it contains: it will thus undergo a variation, and the method of finding this is what is called the *calculus of variations*.

In the same manner as \(x\) is made to denote the fluxion of \(x\), and \(\frac{d}{dx}\) the differential of \(x\); so \(\frac{dy}{dx}\) is used to indicate the variation of \(y\). The fundamental rules of this calculus are founded on the same principles as those of the differential calculus: at the same time, however, it is necessary to guard against confounding the one with the other. A very simple example will shew clearly the distinction that must be made between the two cases.

Let us suppose the equation \(y^2 = ax\), which denotes the relation between the absciss \(A\) and \(P\), and ordinates \(M\) and \(R\), of a parabola \(AM\) (Plate XIII. Analysis, fig. 1), \(a\) being the parameter. By drawing \(p, m\) indefinitely near to \(P, M\), and \(r, r\) parallel to the axis \(AV\); the line \(Pr, M\), will represent the differential \(dx\) and \(R\), the differential \(dy\); and the relation of these differentials is found by the differentiation of the equation \(y^2 = ax\), which gives

\[
\frac{2y}{dy}\frac{dy}{dx} = a + \frac{dy}{dx} \frac{dy}{dx} = \frac{a}{2y}.
\]

Let us conceive now that the equation \(y^2 = ax\), vary by the indefinitely small augmentation of its parameter \(a\), which is one of its elements; and let us construct a second parabola \(AN\), which has \(a + \frac{da}{dx}\) for its parameter. Then supposing the absciss \(A\) to continue the same for both parabolas, it is obvious that theordinate \(P\), of the parabola \(AN\), will have for its value the primitive ordinate \(PM\), augmented by the small quantity \(MN\), which therefore represents the variation that the ordinate \(PM\) undergoes in consequence of the variation of the parameter \(a\); hence, in representing by \(\delta y\) the variation of \(y\), as that of \(a\) is denoted by \(\delta a\), the new equation will be \((y + \delta y)^2 = \left(a + \delta a\right)x\); from which subtracting the original equation \(y^2 = ax\), we shall have (neglecting, as in the differential calculus, the variations of the second order)

\[
2y\delta y = \delta a, \text{or} \frac{\delta y}{y} = \frac{\delta a}{2y} \quad \text{or} \quad \frac{\delta y}{\delta a} = \frac{1}{2y}.
\]

Let us conceive that the equation \(y^2 = ax\), vary by the indefinitely small quantity \(P\), \(\delta x\), the corresponding ordinate for the parabola \(AN\), will be \(\delta n\), and the line \(sn\) will represent the variation of the primitive ordinate \(PM\). Now to find the relation between the variations \(\delta a, \delta x, \delta y\), we must substitute in the equation \(y^2 = ax\), \((a + \delta a)\) for \(a, \)
VARIATION.

\( (x + \beta x) \) for \( x \), and \( (y + \beta y) \) for \( y \), and the equation becomes

\[ (y + \beta y)' = (a + \beta a) (x + \beta x); \]

from which subtracting \( y^2 = ax \), we shall have

\[ 2y \beta x = x \beta a + a \beta x; \]

therefore,

\[ \beta y = x \beta a + a \beta x; \]

\( \frac{\beta y}{2y} = \frac{x \beta a + a \beta x}{2y} \]

which is an expression for the variation \( \beta \), of the ordinates \( P \).

In this example, (and the same has place for all similar equations,) the parameter \( a \), and its variation \( \beta a \), are constant quantities for the entire parabolas, while those of the co-ordinates \( P \) and \( A \) continually change; the changes, therefore, relative to the same parabola belong to the differential calculus, and those which result from the passage of one parabola to another, to the calculus of variations. Any one of the variations \( \beta a, \beta x, \beta y \), may be arbitrarily assumed; as, for example, we may suppose \( \beta x = dx \), but this supposition being once made, the values of the other variations must be subordinate to this, and we cannot therefore afterwards make \( \beta y = dy \), or \( \beta a = da \).

There is no difficulty in determining the variations of every order for algebraical and circular quantities, and common exponentials; the operations being exactly the same as in the differential calculus; we therefore obtain the variations by the same rules, and have only to write \( \delta \) instead of \( d \), and in this respect the calculus of variations returns again to the differential calculus; but this latter will not be sufficient when it is required to determine the variation of the formula, which contain in themselves the sign of integration: thus, for example, let the integral formula be \( \int V \, dx \), where \( V \) is any function of \( x \), \( y \), and \( z \), and constant quantities; we determine this by omitting the sign \( \int \), that is, \( \int \left( \frac{d}{dx} \, dx \right) = V \, dx \); but the expression \( d \int V \, dx \) is very different, as we shall see in what follows.

Now the principal object of the calculus of variations, is to determine the variation of these sorts of integral formulae; let us, therefore, endeavour to establish the principles which are to serve as the basis of this research.

First Principle.—The variation of a differential is equal to the differential of a variation, and reciprocally; that is, we shall have

\( \delta \frac{d}{dx} = \frac{d}{dx} \delta \).

For let us suppose that the variable \( \tau \) represents the ordinate of a curve; then this ordinate will change by differentials while it belongs to the same curve, and by variations in passing from the proposed curve to the curve indefinitely near to the first. In the primitive curve, let \( \tau' \) be the confecutive value to \( \tau \), and consequently \( \tau'' = \tau + \delta \tau \), or \( \tau = \tau - \delta \tau \). Now taking the variation of this last equation, we shall have

\[ \delta \tau = \delta \tau' = \delta \tau + \delta \delta \tau; \]

and in the same manner, as \( \delta \tau \) and \( \delta \tau' \) are confecutive values in the series of \( \delta \tau \), we may consider \( \delta \tau \) and \( \delta \tau' \) as confecutive values in the series of \( \delta \delta \tau \), so that \( \delta \tau'' = \delta \tau + \delta \delta \tau \), or \( \delta \tau = \delta \tau' = \delta \tau'' = \tau = \tau - \delta \tau \). Thus in equating these two values of \( \delta \tau'' - \delta \tau \), we shall have

\[ \delta \tau = \delta \tau'' \]

Hence if we have an expression which contains any number of \( d \)'s and \( \delta \)'s affecting one and the same variable, we make these particularities change place at pleasure; for we have seen that \( \delta d \tau = d \delta \tau \); and in the same manner, we may for \( \delta d \delta \tau \) write \( d \delta d \tau \), or \( d \delta \delta \tau \); and for \( \delta d \delta \tau \) we may write \( d \delta d \delta \tau \), or \( d \delta \delta d \tau \), or \( \delta d \delta \tau \), and so on of others.

Second Principle.—The variation of an integral formula is equal to the variation of its differentials; that is, \( \delta \int f \, dx = \int \delta f \, dx \).

Vol. XXXVI.
VARIATION.

If now we put for \( dy, \ d\rho, \ dq, \ dr, \ &c. \) their values
\[ p\ dx, \ q\ dx, \ r\ dx, \ s\ dx, \ &c. \] we shall find
\[
\begin{align*}
N \ dx (\partial y - \partial x) + P \ dx (\partial q - \partial x) + \\
Q \ dx (\partial r - \partial x) + R \ dx (\partial s - \partial x) + &c.
\end{align*}
\]
Consequently our equation (A) becomes
\[
\begin{align*}
\int V \ dx &= V \ dx + \int N \ dx (\partial y - \partial x) + \\
&\quad + P \ dx (\partial q - \partial x) + Q \ dx (\partial r - \partial x) + \\
&\quad + R \ dx (\partial s - \partial x) + &c.
\end{align*}
\]
This being established, let us make \( \partial y - \partial x = \delta w, \) (a substitution that will be employed in what follows,) and differencing, we shall have
\[
\begin{align*}
\partial \delta y - \partial \delta x = \delta \delta w.
\end{align*}
\]
But the formula \( \delta y = \delta \delta x \) gives, by taking the variations,
\[
\begin{align*}
\delta \delta y &= \delta \delta x \partial q + \partial \delta \delta x, \text{ or} \\
\delta \delta y &= \delta \delta x \partial q + \partial \delta \delta x, \text{ or} \\
\delta \delta y &= \partial \delta \delta x = \partial \delta \delta x.
\end{align*}
\]
Whence, making the necessary substitutions, we obtain finally
\[
\begin{align*}
\int V \ dx &= \int V \ dx + \int N \ dx (\partial y - \partial x) + \\
&\quad + \int P \ dx (\partial q - \partial x) + \int Q \ dx (\partial r - \partial x) + \\
&\quad + \int R \ dx (\partial s - \partial x) + &c.
\end{align*}
\]
a formula in which \( dx \) is supposed constant.

It will be seen from this expression for the variation \( \partial \int V \ dx, \) that it includes two distinct orders of terms, the one affected with the sign \( \partial \), and the other free from it. And farther, that the integration by parts necessarily introduces certain constant quantities which must be annexed

\[
\begin{align*}
\int V \ dx &= \int V \ dx + \int N \ dx (\partial y - \partial x) + \\
&\quad + \int P \ dx (\partial q - \partial x) + \int Q \ dx (\partial r - \partial x) + \\
&\quad + \int R \ dx (\partial s - \partial x) + &c.
\end{align*}
\]

Whence, by substitution, we have
\[
\begin{align*}
dx \partial \rho - d \partial \rho x = d \partial w.
\end{align*}
\]
Now putting for \( \partial \rho \) its equivalent \( q \ dx, \) we shall have
\[
\begin{align*}
dx \partial \rho - q d \partial x x = d \partial w, \text{ or} \\
\partial \rho - q \partial x = \frac{d (\partial y - \partial x)}{dx}.
\end{align*}
\]
and as the quantity \( \partial \delta \) has for its value \( \delta y - \partial x, \) by hypothesis we have again \( \partial \rho - q \partial x x = \frac{d (\partial y - \partial x)}{dx}. \) And a calculation exactly similar to the preceding gives also,
\[
\begin{align*}
\partial q - r \partial x x = \frac{d (\partial q - \partial x x)}{dx}, \\
\partial r - s \partial x x = \frac{d (\partial r - \partial x x)}{dx}, \quad \text{etc.}
\end{align*}
\]
Consequently the equation (B) becomes
\[
\begin{align*}
\int V \ dx &= V \ dx + \int N \ dx (\partial y - \partial x) + \\
&\quad + \int P \ dx (\partial q - \partial x) + \int Q \ dx (\partial r - \partial x) + \\
&\quad + \int R \ dx (\partial s - \partial x) + &c...(C)
\end{align*}
\]
Now by the method of integrating by parts, we find, by making \( dx \) constant,
\[
\begin{align*}
\int \frac{d^2 \delta w}{dx^2} &= \int \frac{d^3 \delta w}{dx^3} + &c.
\end{align*}
\]
to the terms of the latter species. The aggregate of the terms affected with the sign \( \int \) extends through all the variation, \( \text{viz.} \) from its commencement to its termination, while the other quantities answer only to the beginning and end of the variation. This remark finds its application in treating of the maxima and minima of quantities.

PROB. III.

To determine the variation of the indefinite compound integral \( \int V \ dx, \) \( Z \) being a given function of the indefinite simple integral formula \( \int V \ dx, \) where again \( V \) is a function of \( x, y, z, \rho, q, r, \&c. \) as in the preceding problems.

First by Prob. I.
\[
\begin{align*}
\int Z \ dx = Z \ dx + \int (d x \partial Z - d Z \partial x) \ldots (E)
\end{align*}
\]
And supposing \( \int V \ dx = t, \) or \( V \ dx = d t; \) since \( Z \) is by hypothesis a function of \( t, \) we shall have \( d Z = T \ dt, \) \( T \) being a given function of \( t, \) and we shall thus have \( d Z = T \ dt; \) therefore
\[
\begin{align*}
dx \partial Z - d Z \partial x = T d x \partial t - T d t \partial x.
\end{align*}
\]
Consequently we have
\[
\begin{align*}
\int Z \ dx = Z \ dx + \int T d x \partial (d x \partial Z - d Z \partial x) \ldots \ldots \ldots \ldots \ldots (F)
\end{align*}
\]
Now integrating the last term by parts, and representing the integral \( \int T d x \) by \( b, \) for the sake of abridging the preceding equation becomes (F)
\[
\begin{align*}
\int Z \ dx = Z \ dx + b \int (d x \partial V - d V \partial x) = b \int (d x \partial V - d V \partial x).
\end{align*}
\]
This
VARIATION.

This being premised, and making here the values for the variables $dV$ and $\delta V$ the same suppositions, and the same calculations as in the preceding problem, we shall obtain

$$h \frac{dV}{dx} = \int \frac{dV}{dx} \delta x,$$

and hence we draw, by a proceeding similar to that which has been employed in the second problem,

$$dZ \delta x = L' \left( dV \delta x - dV \delta x \right) + N' \delta x \left( \delta y - \delta x \right) + P' \delta x \left( \delta y - \delta x \right) + Q' \delta x \left( \delta y - \delta x \right) + R' \delta x \left( \delta y - \delta x \right) + \&c.$$
If now, as in the second problem, we make
\[ \frac{dV}{dx} = M \frac{dy}{dz} + N \frac{dz}{dx} + P \frac{dp}{dz} + Q \frac{dq}{dz} + \&c. \]
we shall have
\[ dV = M dy + N dz + P dp + Q dq + \&c. \]
substituting, in equation \((K)\), instead of \(f \frac{dV}{dx} (dx) \delta V - dV dx \), its actual value \( f \frac{dV}{dx} (dx) \delta V - dV dx \), and instead of \( dV dx \delta V - dV dx \), the value assumed above, reuniting the several parts, and for the sake of abridging, making \( L'N + N'' = N, L'P + P'' = P' \), we have \( V = V' \) \&c.: this equation will become
\[ \frac{\delta}{\delta} V dx = Z dx + f \left\{ N'' dx (2y - p \delta x) + P'' dx (p - q \delta x) \right\} \]
\[ + Q'' dx (3q - r \delta x) + R'' dx (3r - s \delta x) + \&c. \}
\[ = Z dx + f \left\{ N'' dx (2y - p \delta x) + P'' dx (p - q \delta x) \right\} \]
\[ + f Q'' dx (3q - r \delta x) + f R'' dx (3r - s \delta x) + \&c. \]
An equation which, being of the same kind as Equation \((B)\), Prob. II. will give in the same manner, by making \( \delta y - p \delta x = \delta w \), and supposing \( dx \) constant,
\[ \frac{\delta}{\delta} V dx = \]
\[ \frac{dV}{dx} dx = \]
\[ \frac{dV}{dx} dx = \]
\[ \frac{dV}{dx} dx = \]
Substituting, in equation \((K)\), instead of \(f \frac{dV}{dx} (dx) \delta V - dV dx \), its actual value \( f \frac{dV}{dx} (dx) \delta V - dV dx \), and instead of \( dV dx \delta V - dV dx \), the value assumed above, reuniting the several parts, and for the sake of abridging, making \( L'N + N'' = N, L'P + P'' = P' \), we have \( V = V' \) \&c.: this equation will become
\[ \frac{\delta}{\delta} V dx = Z dx + f \left\{ N'' dx (2y - p \delta x) + P'' dx (p - q \delta x) \right\} \]
\[ + Q'' dx (3q - r \delta x) + R'' dx (3r - s \delta x) + \&c. \}
\[ = Z dx + f \left\{ N'' dx (2y - p \delta x) + P'' dx (p - q \delta x) \right\} \]
\[ + f Q'' dx (3q - r \delta x) + f R'' dx (3r - s \delta x) + \&c. \]
An equation which, being of the same kind as Equation \((B)\), Prob. II. will give in the same manner, by making \( \delta y - p \delta x = \delta w \), and supposing \( dx \) constant, we shall have, by precisely similar operations to those performed in Prob. II.
\[ \frac{\delta}{\delta} V dx = \]
\[ \frac{dV}{dx} dx = \]
\[ \frac{dV}{dx} dx = \]
\[ \frac{dV}{dx} dx = \]
\[ \frac{dV}{dx} dx = \]
Now let \( \delta y - p \delta x = \delta w \), and \( \delta z - p' \delta x = \delta w' \); and supposing \( dx \) constant, we shall have, by precisely similar operations to those performed in Prob. II.
\[ \frac{\delta}{\delta} V dx = \]
\[ \frac{dV}{dx} dx = \]
\[ \frac{dV}{dx} dx = \]
\[ \frac{dV}{dx} dx = \]
\[ \frac{dV}{dx} dx = \]
To which it will be necessary to add certain terms, in order to complete the integral, as stated in the conclusion of our second and last problem.

The formulae above considered are the simplest of their kind, and the solution of them is found by a calculation comparatively direct and easy to perform; but it may happen, that in the general expression \( f \frac{dV}{dx} (dx) \), of which the variation is required, the quantity \( V \) is a function of many variables, conflating of algebraical expressions and various indefinite simple integrals; or the quantity \( V \) may depend upon the integration of an equation of any order; it may also, in some cases, be required to find the variation of a formula under a double
VARIATION.

a double or triple, &c. sign of integration, as \( \int \int Z \, dx \, dy \), in which \( Z \) is any function of \( x \) and \( y \), and so of others. In all these cases, except the last, the variations are determined in the same manner, but the calculus of course becomes more long and intricate, which our limits will not allow of our entering upon in this place. On this head, therefore, the reader is referred to the several works mentioned in the introduction to the present article. We only propose giving here one problem, by way of illustrating the preceding calculations; viz.

To determine the curve \( O \, M \, D \) (Plate XIII. fig. 2) through which a body will pass from the point \( O \) to \( D \), not in the same vertical line, in the shortest time possible.

Let \( A \, V \) represent the vertical plane, in which are situated the two given points \( O \) and \( D \); \( A \, V \) the axis of the absciss; and the horizontal line \( A \, F \) that of the ordinates. Also, let us suppose any absciss \( A \, P = x \), the ordinate \( P \, M = y \), and consequently the element of the arc \( M \, m = \sqrt{d x^2 + d y^2} \), making \( d \, y = \rho \, d \, x \).

Now whatever may be the nature of the curve \( O \, M \, D \), the velocity of the body along and in the direction of the element of the curve \( M \, m \), is equal to that with which it would have acquired in falling from a certain vertical height; all these heights deriving their origin in the same horizontal line, which we may suppose to be the axis of the ordinates \( A \, Z \), the position of this axis being arbitrary.

Thus, calling \( g \) the gravity of the body, the velocity along \( M \, m \) will be \( \sqrt{2 \, g \, x} \), and consequently the time in passing \( M \, m \) will be \( \frac{M}{\sqrt{2 \, g \, x}} \); therefore we shall have

\[
\int \frac{d \, x}{\sqrt{(1 + \rho^2)}} = a \text{ minimum},
\]

or, simply

\[
\int \frac{d \, x}{\sqrt{(1 + \rho^2)}} = a \text{ minimum}.
\]

Now generally, when a quantity becomes a maximum or a minimum, its variation is equal to zero; consequently we shall have

\[
\frac{d}{d \, x} \sqrt{(1 + \rho^2)} = 0.
\]

Now this agrees with our formula \( \int V \, dx \) in the second problem; viz. in the present case \( V = \sqrt{(1 + \rho^2)} \); consequently we shall have \( d \, V = \frac{\sqrt{(1 + \rho^2)}}{2 \, x} \cdot d \, x + \frac{\rho}{\sqrt{(1 + \rho^2)}} \cdot d \, x \); an expression which, being compared with the general value

\[
d \, V = M \, d \, x + N \, d \, y + P \, d \, \rho + \&c.
\]

gives here

\[
M = -\frac{\sqrt{(1 + \rho^2)}}{2 \, x \, \sqrt{(1 + \rho^2)}}; \quad N = 0; \quad P = \frac{\rho}{\sqrt{(1 + \rho^2)}}; \quad Q = 0; \quad R = 0, \quad \&c.
\]

Now the expression of the variation \( \frac{d}{d \, x} \int V \, dx \) comprehends generally, as we have seen in Equation (D), two parts, the one indefinite, containing the sign \( \int \) and the other definite, in which that sign is not found; and it is evident that these two parts are wholly independent of each other; and consequently, if the whole is equal to zero, these two parts are each also equal to zero; thus the equation \( \frac{d}{d \, x} \int V \, dx = 0 \), gives in general the two following equations, of which the one is definite, and the other indefinite; viz.

\[
(1) \quad \int V \, dx + \int P \, d \, \rho = 0
\]

\[
\int \frac{d}{d \, x} \left( P \frac{d \, Q}{d \, x} + d \, \rho \frac{d \, R}{d \, x} + d \, \rho \frac{d \, \rho}{d \, x} \right) = \&c.
\]

(2) \[ \int V \, dx + \int P \, d \, \rho = 0 \]

\[
\int \frac{d}{d \, x} \left( Q - d \, \rho + \&c. \right)
\]

\[
+ \frac{d \, \rho}{d \, x} \left( R + \&c. \right)
\]

\[
+ \&c. + C, \quad \text{correction}.
\]

Equation (1) is that on which depends the nature of curves, since the second member of this equation is an indeterminate expression, which being made equal \( \alpha \), gives to the curve \( O \, M \, D \) the character of a maximum or a minimum. As to Equation (2), it belongs only to the extreme points of the curve \( O \, M \, D \), which may be subject to particular conditions, wholly independent of the nature of the curve.

Now differentiating Equation (1), and dividing the whole by \( d \, x \), we shall have

\[
(3) \quad \int \frac{d \, P}{d \, x} + \int \frac{d \, Q}{d \, x} + \int \frac{d \, R}{d \, x} = 0
\]

which gives generally the solution of the problem, where only the nature of the curve is required, that renders \( \int V \, dx \) a maximum, or a minimum; \( V \) being a function of the perpendicular co-ordinates \( x \) and \( y \) of the curve, and of the quantities \( p, q, r, \&c. \) which are given by the hypothesis \( d \, y = \rho \, d \, x \), \( d \, p = q \, d \, x \), \&c. remembering that the differential \( d \, x \) has been supposed constant.

Now to apply these general results to our problem; since we have \( N = \alpha \), and \( P = \frac{\rho}{\sqrt{(1 + \rho^2)}} \); also \( Q = c \), \( R = \alpha \), \&c. our Equation (3) becomes

\[
(3) \quad \int \frac{d \, P}{d \, x} + \int \frac{d \, Q}{d \, x} + \int \frac{d \, R}{d \, x} = 0
\]

which is the differential equation of the curve \( O \, M \, D \); consequently, by integrating we shall have

\[
\frac{\rho}{\sqrt{(1 + \rho^2)}} = \frac{1}{\sqrt{a}} \cdot a \text{ being an arbitrary constant quantity.}
\]

Now sublimate for \( \rho \) its value \( \frac{d \, y}{d \, x} \) and we shall have

\[
\frac{d \, y}{\sqrt{x} \cdot \sqrt{(1 + \rho^2)}} = \frac{1}{\sqrt{a}} \cdot \frac{d \, y}{d \, x}
\]

which gives

\[
d \, y = \frac{d \, x}{\sqrt{x} \cdot \sqrt{a - x}}.
\]

the equation of the referred cycloid, its base being horizontal, and its generating circle having for its diameter the constant quantity \( a \).

This equation being integrated, will receive a second arbitrary constant \( b \); and we shall have then, in the final equation, two constants, \( a \) and \( b \), which will be determined from the condition that the cycloid passes through the two points \( O \) and \( D \).
O and D, given in position. For other examples illustrative of this calculus, see the article ISOPERIMETRY.

VARIATION, in Music, is the different manner of playing or singing the same air, tune, or song, either by subdividing the notes into several others of less value, or by adding graces, in such a manner, however, as that the tune itself may still be discovered through all its embellishments, which the French call broderies.

Thus, great matters of the last century, flattering the bad taste of the public, have condescended to make variations to old tunes; as Corelli to Farinel's ground, or "All Joy to great Cecar," which the Italians call "La Follia d'Epangna," and which he has made the theme of his whole twelfth sonata. Handel and Tartini have composed simple airs on purpose to be the ground-work of variations. The late John Christian Bach, Fichter, Giardini, &c. have varied Scotch and Irish tunes to corrupt the public taste, instead of improving it by new compositions, which would have done them more credit, and given them less trouble. See Theme and Double.

"All Paris," says Ronseuff, "used to go to the concert spiritual, to hear the variations of Meffrs. Guignon and Mondionville; and still at a more recent period, those of Meffrs. Guignon and Gaviniès, to the tunes of the Pont-neuf, which had no other merit than that of being tried with by the two greatest performers on the violin in France?"

VARICA, in Ancient Geography, a town of Atlantic Iberia, according to Ptolemy.

VARICELLA, in Medicine, a diminutive of Variola, (the small-pox,) signifying a vehicular eruption, accompanied with flight febrile symptoms, and occurring but once in the period of human life, which is popularly termed chicken-pox and swine-pox. It will not be matter of surprize if this disease should bear the name of a lesser small-pox, and that it should have been described by the older writers as a modification of that distemper, under various similar appellations, such as varicella purulenta, volatiles, puraris, &c.; when we are informed by a late acute investigator of diseases, Dr. Willan, that, from the year 1800, to the time of the publication of his effay on vaccination, in 1806, he had been seventy-four cases of chicken-pox that had been mistaken for small-pox, after vaccine inoculation. It is true, indeed, that the distinction has been rendered somewhat more difficult, in consequence of the milder degree, shorter duration, and modified form, which the small-pox itself has been made to assume by the influence of the previous cow-pox, in the few cases where it has occurred after this disease. Nevertheless, the resemblance is sufficient at all times to mislead ordinary observers; and the foreign nomenclature, from Sauvages down to Burlerius, have considered the disease as a species of variola. (See Sauvages Nofol. Method. clafs iii. gen. 2. Vogel, De Cognitione et Curand. Hominum Morbis, § 126. Burlerius, Infl. Med. vol. ii. cap. 9.) It is singular, however, that not only some of the earlier Italian writers on the small-pox, who lived three centuries ago, have distinctly described the chicken-pox under a specific name, erythall, and with the mention of the fearfully perceptible fever, and absence of all danger (see Vindicus Vindicis, De Cyntheticis; and Ingraffia de Tumoribus præter Naturam, lib. i. cap. 1.) but that the vulgar, in several countries of Europe, had distingusihed it by popular appellations, even while physicians were regarding it as a modification of small-pox. Thus Daniel Sennert, who was a professor at Wittemberg at the commencement of the seventeenth century, observes, in his Trestifé on Small-pox and Measles, that there are other varieties, "præter communes variolas et morbillas," which are popularly known in Germany by the terms schaffbistellen (sheep-pox, or sheep-blows or blains) and windkolten (wind-pox). (See his Med. Præct. lib. iv. cap. 12.) And Rivierius, who was professor at Montpellier at the same period, speaks of it as familiarly known by the common people in France by the name of veirodette. (See his Praxis Med. cap. ii.) In Italy it was also known to the vulgar under the appellation of ravigione. Again, in our country, Fuller, who published his "Examen Medici" in 1730, acknowledges himself indebted to the old women for his appellation. "I have adventured to think," he says, "this is what among our women goeth by the name of chicken-pock." (P. 161.) Other popular names have been given to the disease in different parts of this country. Thus it is in many places called swine-pox; in some, horse-pox; and at Sunderland and Berwick, water-jugy. (See Dr. Wood in the Med. and Phys. Journal, vol. xiii. p. 58.) In some places, however, the different forms which the disease itself assumes, three of which have been distinctly described by the late ingenious Dr. Willan, are designated by the terms chicken-pox, swine-pox, and hives, respectively.

The character of each of these varieties, under which the varicella occasionally appears, we shall copy from the work of that excellent observer of diseases, as there is no other description of them extant of equal accuracy; and it is highly necessary to be able to discriminate between this eruption and the milder forms of small-pox, and especially that modified and altered varicella which sometimes succeeds vaccination. The only other account of the chicken-pox in our language, which bears the stamp of observation, is a paper of the late excellent Dr. Heberden, another physician of the true Hippocratie school, written in the year 1767, and published in the first volume of the Transactions of the College of Physicians, and which we shall have occasion also to quote, on the point of diagnosis, in the sequel of this article. Dr. Willan observes, "there are three varieties of the varicella, which, from the different forms of the vehicles, may be entitled the lenticular, conoidal, and globate." And he adds, in a note, "In the northern parts of England, and in some counties of Scotland, these varieties are denominated the chicken-pox, the swine-pox, and the hives. In the south, both the latter varieties are called swine-pox.

1. "The lenticular varicella exhibits, on the first day of eruption, small red protuberances, not exactly circular, and having a flat shining surface, in the centre of which a minute vehicle is soon formed. This, on the second day, is filled with a whitish lymph, and it then somewhat resembles a milky vehicle, but is not so prominent, so tenue, or so regularly circumcised: its diameter is about the tenth of an inch. On the third day, the extent of the vehicles continues the same, but the lymph they contain becomes straw-coloured. On the fourth day, many of the vehicles are broken at the most prominent part; the red begin to shrink, and are puckered at their edges. Few of them remain entire on the fifth day, but the orifices of several broken vehicles are closed, or adhere to the skin, so that it is not confined to the affected skin, but spreads to the adjacent parts. On the sixth day, small thin brown fleas appear universally in the place of the vehicles. The fleas, on the seventh and eighth days, become yellowish, and gradually dry from the circumference towards the centre. On the ninth and tenth days they fall off, leaving for a time red marks in the skin, without depression.

2. "In the conoidal varicella, the vehicles rise suddenly, and have a hard inflamed border. They are, on the first day of their
VARICELLA.

The appearance, acuminated, and contain a bright transparent lymph. On the second day they appear somewhat more turbid, and are surrounded by more extensive inflammation than on the preceding day; the lymph contained in many of them is of a light straw-colour. On the third day, the vesicles are shrivelled; those which have been broken exhibit at the top, a gummy fluid, and have much inflammation round them, evidently contain on this day purulent fluid. Every vesicle of this kind leaves, after scabbing, a durable cicatrix or pit. On the fourth day, thin dark-brown vesicles appear intermixed with others, which are rounded, yellowish, and semi-transparent. These vesicles gradually dry and separate, and fall off in four or five days.

"A fresh eruption of vesicles usually takes place on the second and third day, and as each vesicle has a similar course, the whole duration of the eruptive phase in this species of varicella is six days; the last-formed vesicles, therefore, are not separated till the eleventh or twelfth day."

3. "In the swine-pox, or hives, the vesicles are large and globated, but their base is not exactly circular. There is an inflammation round them, and they contain a transparent lymph, which, on the second day of eruption, refumbles milk-whey. On the third day, the vesicles subsides, and, as in the two former species, become puckered or shrivelled. They likewise appear yellowish, a small quantity of pus being mixed with the lymph. Some of them remain in the same state till the following morning, but, before the conclusion of the fourth day, the cuticle separates, and thin blackish vesicles cover the bases of the vesicles. The vesicles dry and fall off in four or five days.

"The eruption is usually completed in three days, but I have sometimes observed a few fresh vesicles on the fourth day; in which case, therefore, the eruptive phase occupied eight days.

"The fever in varicella commences two or three days before the eruption appears, and it sometimes continues to the third day of the eruption, but is generally very slight. Its symptoms are languor, with disposition to sleep, loss of appetite, thirst, heat of the skin, occasional flushing of the cheeks, a severe cough, foreheads of the throat, a white fur on the tongue, a quick but unequal pulse, pains in the head, back, and limbs, sometimes pain in the loins and bowels, with nausea, or vomiting of bile.

"The eruption usually commences on the breast and back, appearing next on the face and neck, and lastly on the extremities. It is attended, especially in children, with an incessant tingling or itching, which leads them to scratch off the vesicles, so that the characteristics of the disease are often destroyed at an early period. Many of the vesicles, thus broken and irritated, but not removed, are presently surrounded by inflammation, and afterwards become pustules, containing thick yellow matter. These continue three or four days, and finally leave pustes in the skin. The eruption is usually fullest in the conoidal form of varicella: I have seen the vesicles close together, or coherent, but seldom confluent. When they are numerous on the scalp, tume of the glands below the base of the cranium are enlarged.

"The incidental appearance of pustules among the vesicles sometimes occasions a doubt respecting the nature of the eruption. See Dr. Willan's "Treatise on Vaccination," page 86.) Dr. Heberden says, "the principal marks by which the chicken-pox is distinguished are:

1. The appearance, on the second or third day from the eruption, of the vesicles full of serum upon the top of the pock. The pustules which are full of the yellow liquor resemble what the genuine small-pox are on the fifth or sixth day, especially when there happens to be a larger space than ordinary occupied by the extravasated serum. It happens to most of them, either on the first day that the little vesicle arieres, or on the day after, that its tender cuticle is burst; a thin scab is then formed at the top of the pock, and the swelling of the other part abates, without its ever being turned into pus, as it is in the small-pox.

2. "Small scabs cover the chicken-pox on the fifth day; at which time the small-pox are not at the height of their suppuration.

3. "The inflammation round the chicken-pox is very small, and the contents of them do not seem to be owing to suppuration, as in the small-pox, but rather to what is extravasated immediately under the cuticle by the ferox vesicles of the skin, as in a common blister. No wonder, therefore, that this liquid appears so soon as on the second day, and that upon the cuticle being broken, it is presently succeeded by a light scab. Hence too, as the true skin is so little affected, no mark or scar is likely to be left." See Med. Trans. of the Coll. of Physicians, vol. i. art. 16.

To these remarks Dr. Willan adds, that "various pustules, on the first and second day of their eruption, are small, hard, globular, red, and painful. The sensation of them to the touch, on passing the finger over them, is similar to that which one might conceive would be excited by the pressure of small round seeds under the cuticle. In the varicella almost every vesicle has, on the first day, a hard, inflamed margin, but the sensation communicated to the finger in this case, is like that from a round seed, flattened by pressure." He also observes that, "on the third and fourth days, the shrivelled or wrinkled state of the vesicles which remain entire, and the radiating furrows of others, whose ruptured apices have been closed by a slight incrustation, fully characterize the varicella, and distinguish its eruption from the firm and durable pustules of small-pox. As the vesicles of the chicken-pox appear in succession during three or four days, a partial examination will not always discover the characteristic here specified. In order to form a proper judgment, practitioners should inspect the eruption on the face, breast, and limbs, attending more especially to the places in which it was first observed. If the whole eruption be viewed on the fifth or sixth day, every gradation of the progress of the vesicles will appear at the same time. This circumstance may be added to the diagnosticks of varicella, as it cannot take place in the slow and regulated progress of the small-pox.

"The globulated vesicles not having any resemblance to various pustules, distinguish the varicella from the small-pox, whenever they appear; for it is to be remembered, that these large vesicles are occasionally intermixed, both with the lenticular and conoidal vesicles of the chicken-pox. It may be said, that an acknowledged co-existence of different sets of vesicles in the same person tends to abrogate the distinction I have made. The vesicles, however, are, in many cases, all of the same kind: or, where they are intermixed, one sort greatly predominates. I do not contend for the perfect accuracy of nosological arrangement, but I adopt it because it is in many respects convenient. Systems of botany and zoology are useful, though they have not been yet brought to perfection, for we find some species which break the order of every classification proposed." Loc. cit. p. 96.

With respect to the treatment of varicella, under any of its forms, very little need be said: since it is seldom attended by any feverish indisposition, and often by scarcely any perceptible disorder of any of the functions, except a little malaise and inability for the usual exertions, a whiff of the tongu,
tongue, and some loss of appetite. In these cases, the
medical recommendation is rather in avoiding all causes of irritation,
such as the use of hot, spicy foods, than in the actual administra-
tion of medicines. Where the fever is more considerable,
however, not only are these cautions necessary, but it will
be proper also to evacuate the bowels, by gentle means, as
by a little rhubarb, or neutral salts, to take dilute drinks,
and gently diaphoretic medicines.

VARICOCELE, in Surgery, derived from varix, a di-
lated vein, and καλα, a tumour, sometimes denotes a varico-
ence enlargement of the veins of the spermatheic cord; but, more
commonly, a similar diffuse enlargement of the veins of the
scrotum; the term cirrocele being usually applied to the other affec-
tion.

Varicocele, or a varicoce enlargement of the veins of the
scrotum, is a subject of but little importance; because
these vessels are never thus affected, except in consequence of
some other more serious disease of the testicle and its
surroundings. Indeed the varicocele is to be regarded as the
more effective cause of the disease, not merely on account of
the only necessary indication, but of the effects of the disease, which
being never self-sustaining, a source of much inconvenience, always subsides without fur-
ther trouble.

Varicocele, considered as a varicoce enlargement of the
spermatheic veins, is a disease that demands greater attention;
but as it has been explained in a previous volume (see Cir-
socelle), we do not mean to detain the reader with it in the
present place. One remark, however, appears to merit par-
ticular attention: a varicoce swelling of the spermatheic veins
is more frequently than any other disease mistaken for an
omental hernia. Mr. Askley Cooper has given the following
rule, by which the two diseases may be distinguished: Place
the patient in a horizontal posture, and empty the swelling by
premature upon the scrotum; then put the fingers firmly upon
the upper part of the abdominal ring, and defcribe the patient
as follows: if it be a hernia, the tumour cannot disappear as
long as the pressure is continued at the ring; but if it be a
cirrocele, the swelling returns with increas’d force, on account
of the return of blood into the abdomen being prevented by
the pressure. See Cooper on Inguinal Hernia.

VARICOSE VEINS. The term varix is applied by
surgeons to the permanently dilated tube of a vein, attended
with an accumulation of dark-coloured blood, the circulation
of which is materially retarded in the affected vessel. When
veins are varicose, they are not only dilated, but they are also
evitably elongated, preternatural larger than nat-
ural, irregular, and in several places fluided with knots. They
likewise make a variety of windings, and, coiling themselves,
form actual tumours from the assemblage of their convolu-
tions in one particular place. The trunk and branches of a
vein, thus dilated and elongated, constitute a very distinct
swelling, when they are numerous, and confined to a certain
part of the body. Indeed, when the diseased vessels are
situated near the integuments, the surgeon can feel, and even
see the outlines of their tortuous course. These things, for
instance, are remarkably obvious in the vein saphenous interna,
where the affection is particularly common. This vein may
be observed to form in its course several of these swellings,
in the interstices of which it runs in a very serpentine tor-
thous manner.

Varices are most commonly observed in the lower extremi-
ties, reaching sometimes even as far up as the abdomen. They
have, however, been noticed in the upper extremities, and it is
probable that the whole venous system is susceptible of the
affection. As a well-informed writer observes, "the great
venous trunks sometimes become varicose. When the diseased
vein is situated near the heart, it is attended with pulsation, which
renders it liable to be mistaken for aneurism. Morgagni ob-
served that the jugular veins were occasionally very much dil-
ated, and pollexed a pulsation. (Letter xviii. art. 9. fo. 11.) He
also relates a case in which the vena azygos, for the length of
a span, was so much dilated, that it might be compared with
the vena cava. The patient died suddenly in con-
sequence of the rupture of this varix into the right side of the
heart. (Letter xxvi. art. 29.) A similar case is related by
Portal, who also mentions an instance, in which the right
subclavian vein was excessively dilated, and burst into the
heart. (Cours d’Anatomie Medicale, tom. iii. pp. 354-373.) Mr. Cluets, in his lectures on the circulatory system of a woman
who had a large pulsating tumour in her neck, which burst, and
proved fatal by hemorrhage. A case reported from the in-
ferior jugular vein; the carotid artery was lodged in a
groove at the posterior part of this face. The veins of the
upper extremity very rarely become varicose. Excepting
cases of aneurismal varix, the only influence of this disease
which I am acquainted with mentioned by Petit. (Traté
sur l’Hypertrophie des Veines de la Céphalée, tom. p. 49.) In this case a varix was
situated at the bend of the arm; the patient was too fat, that
no other vein could be found for the purpose of vene-
fication, which operation Petit repeatedly performed by
puncturing this varix. The superficial epigastric veins sometimes
become varicose; but the most frequent seats of this
disease are the vena saphena, the spermatheic and hemorrhoidal
veins.” (See Hodgson’s Treatise on the Diseases of Ar-
teries and Veins, pp. 538, 539.) The deep-seated veins of the
extremities seldom become varicose.

The disease rarely occurs before the adult period of life,
and its progress is extremely slow. It is very frequently
marked in pregnant women, who have a fat called age;
but it is particularly usual for it to happen in young
women, even during a series of repeated pregnancies. Suc-
urgeons have not hitherto made out any very precise informa-
tion respecting the places, climates, and kinds of constitut-
ions which promote the occurrence of a varicoce enlarge-
ment of the veins. Nor has it been well proved, that the
disease often proceeds from swellings of the abdominal vasaer,
and with other species of tumours capable of mechanically ob-
instructing the venous circulation. One or more veins of the
same limb are at first most commonly affected with a slight
degree of dilatation, without pain, or any sensation of un-
cahnese. This beginning change ordinarily advances with
great swiftness, except in cases where it accompanies preg-
nancy, in which circumstance one or both the lower extre-
mities, as early as the first month, are frequently seen co-
verted with largely dilated veins, or even with tumours formed
by an assemblage of varices. The veins gradually become
more and more distended, lengthened, coiled up, and tor-
uous. The patient then begins to complain of a sense of heaviness, numbness, and sometimes of very acute wandering
pain through the whole of the affected limb. In a more ad-
vanced stage, in proportion as the varices increafe, and espe-
cially when the dilated veins actually form tumours, the limb
swells, and becomes more or less aedematous, according to
the extent of the diseaee, and the time which it has exifled.
M. Delpech thinks, however, that the aedema in this case is
not such as to justify the conclusion, that the increased size of
the veins, and the way in which they distend the integu-
men, produce a mechanical interruption of the function of the
absorbent system. For, says he, we meet with, though not often, enormous varices, which are not attended
with any swelling of the cellular substance; and we still
more frequently fee caffes, in which there is a considerable
degree of aedema, while the varices are scarcely remarkable.
When the latter have prevailed a long while, and made much

much progress, the coats of the affected veins are not frequently thickened, swelling, and indurated, forming a fort of half canal, or solid tube, which has been regarded as an excavation made by the preasure of the varix against the neighbouring bone. But the same phenomena are equally observable, when varicose veins lie at a distance from any bone, against which it can be prefixed.

As Mr. Hodgson remarks, "the blood occasionally deposits fibrings of coagulum in varicose veins: when this is the cafe, the vessel is incapable of being emptied by preasure, and is firm to the touch. The depoition does not in general fill the vessel, but, by diminishing its calibre, it retards the flow of blood, and causes the dilatation to increase in the inferior portion of the vein, and in the branches which open into it." (On the Diseases of Arteries and Veins, p. 541.) This gentleman has seen four cafes, in which the coagulum accumulated to such an extent, that the canals of the dilated vessels were obliterated, and a spontaneous cure was the consequence.

The excessive dilatation of the coats of a superficial vein produces an inflammatory irritation, at first in the adjoining cellular membrane, and afterwards in the integuments. These organs become at first connected together by the adhesive inflammation; and if the dilatation continue to operate, they may at length ulcerate, and burst, and hemorrhage be the consequence. In such cafes, the effusion of blood has sometimes been very considerable; but, says M. Delpech, we have no example of its having proved dangerous. The syncope following it, or a moderate compression, has sufficed for its stoppage. A more common occurrence than bleeding, is the coagulation of the blood in the cavity of a varicose vein. The vessel then becomes hard and incompressible, and it loses that elastic yielding tofheen, which renders it capable of being diminished by gentle pressure. If the parts be already infamed, Delpech conceives, that the clot in the diseased vein may act as an extraneous body, and bring on ulceration, by the effects of which it is as laft brought into view. In this sort of cafe, it is extremely uncommon for hemorrhage to occur; for, in general, the vessel has been already obliterated by the preceding inflammation. But the ulcer itself is very difficult to heal, and may be kept up a long time by the edematous swelling of the limb. Varices, or rather the edema which is the consequence of them, has the fame effect upon every other species of ulcer, and even upon the moft simple solution of continuity. When the swelling of the limb cannot be dispersed; while the edges of a solution of continuity are kept affurer by the taut flate of the skin; and while the divided parts are irritated by this painful tension; every thing is unfavourable to cicatrization. Thus we see the moft simple wounds, which have been allowed to suppurate, and ulcerate, which should have healed rapidly, continue uncurc a great many years, merely because the limbs, on which they are situated, are affected with an edematous swelling, the consequence of varices. Such is the condition of things in the cafe which has been improperly named the varicose ulcer. Delpech Traité des Maladies Chir. tom. iii. feét. 8. art. 5.

In the investigation of the causes of varices, it is usual to dwell very much upon the mechanical obstructions which may affect the circulation of the blood in the veins. Surgeons have thought themselves justified in regarding this as the only cause, because a circular, moderate compression incontrollable retards the course of the blood in these vessels, and produces a temporary dilatation of them. The opinion has seemed also to derive confirmation from the knotty appearance of varicose veins, a circumstance which has been accounted for by supposing, that the dilatation is greatest in the situation of the valves. Lastly, the idea is further supported on the well-known fact of the frequent occurrence of varices during the slate of pregnancy. But it has not been remembered, that the use of garters, for example, is extremely common; but varices are not very frequent; that very large varices are met with in persons who have never employed any kind of ligatures, to which the origin of the complaint can be imputed; that when the dilatation of the veins extends to the thighs and parts of the abdomen, no causes of this description even admit of suspicion; that varicose veins are observable round several kinds of tumours, especially firrхи; when there is no possibility of pointing out any mechanical obstruction to the circulation of the blood; that varices sometimes make their appearance at the commencement of pregnancy, and long before the enlargement of the womb can impede the free return of the blood through the veins in the pelvis; that nothing is more unusual than a varicose dilatation of the veins of the lower extremities, in consequence of swellings of the abdominal vessels. Lastly, it has been forgotten that the knots of the dilated veins are far too numerous to admit of being ascribed to the resistance of the valves. It cannot be denied, that pressure applied in the track of the vessels, tends to promote their dilatation; but it can neither be considered as the only cause, nor as the principal one. The foregoing observations made by Delpech, render it probable, that some unknown general cause is concerned in producing varices, the formation of which may also be facilitated by the impediments to the free return of the blood, occasioned by certain attitudes, and particular articles of clothing.

Mr. Hodgson conceives it probable, that in some instances, the valves are ruptured in consequence of mucular exertions, or external violence, in which cafes, the pressure of the column of blood is the first cause of the dilatation of the veins. Sometimes, also, the disease appears to arise from preternatural weaknesses in the coats of the veins, as in those instances in which, without any evident cause, it exists in various parts of the same person. Treatise on the Diseases of Arteries and Veins, p. 537.

Experience proves, says Delpech, that there is no certain mode of curing varices, strictly so called, which he thinks cannot be wondered at, since the nature and causes of the diseafes are completely unknown. The same source of knowledge, however, also proves, that the increase in the dilatation of varicose veins may be retarded, and that the edematous swelling attendant on the complaint may be beneficially opposed. But these effects cannot be produced by rofesolvent, tonic, astringent applications, nor by aperient, diuretic, and purgative remedies, as soe even of the latest writers so inconsiderately assert; but only by means of mechanical and permanent compression. When the whole of a limb affected with varices is subjected to this laft mode of treatment, the dilated veins subside, the circulation is more regularly performed, and the edema and pain cease. There is not, says Delpech, any better method of healing the solutions of continuity in the soft parts produced or kept up, by the varicose flate of the limb and its consequences. But as soon as the compression is discontinued, the varices make their appearance again, the pain recurs, the edema reappears, and the ulcers which were healed break out afresh. Compression, therefore, which absolutely required to be constantly employed, can be regarded only as a palliative, the more useful indeed, inasmuch as the changes which it brings about in the state of things are nearly equivalent to a perfect cure.
Inflammation of the integuments covering a varix, or varicofe tumour, cannot invariably be prevented by compression, nor will this treatment always succeed even in removing the intolerable pain which sometimes attends numerous clusters of varicofe veins. In the first case, rest and relaxing applications will often succeed; and in the second, the topical use of sedatives frequently gives relief. It has been proposed to puncture and empty varicofe veins; but if a temporary emptiness and relaxation of these vessels, which are rendered painful by their dilatation, could remove the pain for a time, things would fall into the old state again in the course of a few days. If it should appear also, that the clotted blood had the effect of keeping up the unfavourable symptoms, it would be necessary to make a very considerable opening into the dilated vein, in order that the coagulum might be extracted. In such a case, it would be useless to tie the vessel above and below the opening, as has been recommended: the slightest compression is afterwards sufficient for the stoppage of the bleeding, and by the subsequent inflammation the vessel is certain of being obliterated.

We learn from Celsus, that the ancients were accustomed to remove varices by excision, or destroy them with the cautery. (De Rê Médica, lib. vii. cap. 3.) When the vein was much convoluted, extirpation with the knife was preferred; but in other cases, the dilated vessel was excised by an incision, and then cauterized. Petit, Boyer, and many surgeons in this country, have also sometimes practised the operation of cutting out clusters of varicofe veins.

Delpech remarks, that the extirpation of tumours composed of numerous varices, has been practised either for the purpose of removing the pain in the situation of the diseafed, or other inconveniences. "This operation has been successfully performed; but it appears also not to have conftantly had the effect of preventing the formation of new varices, and it has sometimes proved tedious, difficult, and severely painful in its execution. In fact, an erroneous judgment must necessarily be formed of the extent of these swellings, when they are judged of only from the appearance which they present under the skin. When we attempt to operate, says Delpech, we may be led to organs which ought not to be meddled with, and a long and extremely painful dissection may be found requisite. Besides, varices are not always confined to the superficial veins, and a relapse would be inevitable. These reflections tend to the conclusion, that operations of this sort should never be undertaken, except when the diseafed is accompanied with perilous symptoms, or nearly deprives the patient of the use of his limb."

It has been thought, that one of the established principles in the treatment of aneurism might be advantageously extended to the cure of varicofe veins. By tying the principal venous trunk above the point to which the varicofe affection reaches, it is said that the course of the blood in the morbid vessels may be totally stopped; the column of this fluid contained in them made to coagulate; and the consequent obliteration of the vessels themselves accomplished.

The practice of tying veins for the cure of varices appears to have been employed in the days of Paré and Dionis, (Cours d'Opérations de chirurgie, p. 610.) who have accurately described the operation of tying and dividing the vein between the two ligatures. Sir Everard Home has related many cases of varicofe veins in the leg, some of them being accompanied with tedious ulcers, in which, after tying the vena faphena major, where it passes over the inside of the knee, not only the dilatation of the veins of the leg was relieved, but the ulcers were readily healed. This proceeding has unquestionably been sometimes followed with success; but it has also had its failures. Amongst other evils, an inflammation of the tied vein has been observed extending very far in the vessel, and succeeded by convulsions and death. Indeed, the dangers arising from an inflammation of the internal coat of the veins are now generally acknowledged, and every endeavour should be made to avoid them. A case which lately happened in one of the large hospitals of this metropolis, has fully proved them: we allude to the example, in which the femoral vein happened to be wounded in the operation for aneurism, and had a ligature applied round the small aperture accidentally made in it. Inflammation of its internal coat took place to a considerable extent, and the patient is supposed to have died of the indifiopon resulting from it.

As Mr. Brodie observes, it seems to be now established by the experience of modern surgeons, that a mechanical injury inflicted on the trunk of one of the larger veins, is liable to be followed by inflammation of its internal membrane, and a fever of a very serious nature; and the occasional occurrence of these symptoms after the ligature, or even the simple division of the vena faphena, has made surgeons less confident than formerly, of the propriety of attempting these operations for the relief of a varicofe state of the branches of that vessel in the leg. Certain reflections, however, induced Mr. Brodie to think, that the same ill effects would not follow a similar operation performed on the branches themselves. "Where the whole of the veins of the leg are in a state of morbid dilatation, and the difficulties produced by the diseafed is not referred to any particular part, there seem to be no reasonable expectations of benefit, except from the uniform pressure of a well-applied bandage. But not unfrequently, we find an ulcer which is irritable, and difficult to heal, on account of its connection with some varicofe vessels; or without being accompanied by an ulcer, there is a varix in one part of the leg, painful and perhaps liable to bleed, while the veins in other parts are nearly in a natural state, or at any rate are not the source of particular uneafiness. In some of these cases, I formerly applied the caufic potash, so as to make a flough of the skin and veins beneath it; but I found the relief which the patient experienced from the cure of the varix, to afford but an inadequate compensation for the pain to which he was subjected by the use of the caufic, and the inconvenience arising from the tedious healing of the ulcer, which remained after the separation of the flough."

"In other cases, I made an incision with a scalpel through the varix and skin over it; this destroyed the varix as completely as it was destroyed by the caufic, and I found it to be preferable to the use of the caufic, as the operation occasioned less pain, and as, in consequence of there being no los of subflance, the wound was cicatrizd in a much shorter space of time. I employed the operation, such as I have described it, with advantage in several instances; but some months ago I made an improvement in the method of performing it, by which it is much simplified, rendered less formidable, not only in appearance, but also in reality; and followed by an equally certain, but more speedy cure."

"It is evident," says Mr. Brodie, "that the extensive division of the skin over a varix, can be attended with no advantage. On the contrary, there must be a disadvantage in it, as a certain time will necessarily be required for the cicatrization of the external wound. The improvement to which I allude consists in this; the varicofe vessels are completely divided, while the skin over them is preferred entire, with the exception of a moderate puncture, which is necessary for the introduction of the instrument with which the incision
incision of the veins is effected. Thus the wound of the internal parts is placed under the most favourable circumstances for being healed, and the patient avoids the more tedious processes, which is necessary for the cicatrization of a wound in the skin above.

For this operation, I have generally employed a narrow sharpened bistoury, slightly curved, with its cutting-edge on the convex side. Having ascertained the precise situation of the vein, or cluster of veins, from which the diffeats of the patient appears principally to arise, I introduce the point of the bistoury through the skin on one side of the varix, and pass it on between the skin and the vein, with one of the flat surfaces turned forwards, and the other backwards, until it reaches the opposite side. I then turn the cutting-edge of the bistoury backwards, and in withdrawing the instrument, the division of the varix is effected. The patient experiences pain, which is occasionally severe, but subsides in the course of a short time. There is always hemorrhage, which would be often profuse if neglected, but which is readily stopped by a moderate pressure, made by means of a compress and bandage carefully applied." Mr. Brodie particularly enjoins the necessity of keeping the patient quietly in bed for four or five days after the operation, and removing the bandage and flannel dressings with the utmost care and gentleness. He also cautions surgeons not to make the incision more deeply than absolutely necessary. Inflammation of the coats of the veins has not occurred in any of the cases in which Mr. Brodie has adopted this method of treatment. This gentleman wishes it to be understood, however, that he does not recommend the practice indiscriminately, but with the greatest attention to the circumstances of each individual case. "The cases for which it is fitted, are not those in which the veins of the leg generally are varicose, or in which the patient has little or no inconvenience from the complaint; but those in which there is considerable pain referred to a particular varix; or in which hemorrhage is liable to take place from the giving way of the dilated vessels; or in which they occasion an irritable and obdurate varicocele ulcer." See Medico-Chir. Trans. vol. vii. p. 195, et seq.

On the subject of cutting through veins affected with varix, it is proper to observe, that even this plan has been known to bring on severe and fatal symptoms. Cases confirming this fact are recorded in a valuable modern work, which should be in the hands of every practical surgeon. (See Hodgson's Treatise on the Diseaes of Arteries and Veins, p. 555, et seq.) It is but justice to state, however, that in these examples, Mr. Brodie's manner of doing the operation was not adopted.

As we have already noticed, cafes of spontaneous varix in the veins of the arm are rarely observed. When these vessels become varicose, it is almost always in consequence of a communication being formed, in the operation of venefication, between the brachial artery and one of the veins at the bend of the arm. The superficial veins in this situation then become more or less dilated by the impulse of the stream of arterial blood which is thrown into them. There is, however, a good deal of difference between those accidental varices actually induced by a mechanical cause, and those which originate spontaneously, or from caules not very clearly understood. The former never acquire the size which the latter often attain; they never exceed a certain magnitude, whether prefire be employed or not; they never form tumours composed of an assemblage of varicose veins; they are never filled with tough coagula of blood; their coats are never thickened, nor constitute the solid half canal remarked in the other species of varices; the skin which covers them is not disposed to inflame and ulcerate; they are not subject to occasional hemorrhage; and the limb is not affected with any edematous swelling. (See Delpech Traité des Maladies Chr. tom. iii. p. 261.) These circumstances must render it sufficiently evident that all surgical interference in such a case would be entirely unnecessary.

For additional observations connected with the subject of varicose veins, see the article AXERRUSIS, where the aneurismal varix is described; CHOSICLE, where the varix of the piformer cord is treated of; HEMORRHOIDS, where the diseased and enlarged veins of the rectum are considered; and VARICOLOGY, where those of the scrotum are noticed. Delpech Précis Éléméntaire des Maladies réputées Chirurgicales, tom. iii. Hodgson's Treatise on the Diseases of Arteries and Veins. Cooper's Dictionary of Practical Surgery.

VARICOSE Ulcer. See the preceding article, and Ulcers. VARICOSE, or Varicous, a term applied to a kind of soft puffy swelling, or particular sort of ulcer in animals, mostly about the legs. See Ulcers, in Animals.

VARICULA, (diminutive of varix,) in Surgery, a varicose enlargement and dilatation of the veins of the tunica conjunctiva of the eye; a frequent consequence of chronic inflammation.

VARIÉAS, in Geography, a town in Portugal, in the province of Beira; 14 miles S.E. of Lamengo.

VARIÉGATED LEAVES, in Botany and Vegetable Physiology, folia variegata, or more properly variaota, are such as are irregularly blotched with white or yellow, constituting a variety, for the most part permanent, and which are not uncommon in several species of shrubs, trees, or herbs. The white variegation is most usually seen in Elder, some kinds of Elm, Round-leaved Mint, or Mentha rotundifolia, and Striped Gras, or Phalaris arundinacea; the yellow one in Jamine, White Lily, and in many evergreens, as Holly, Rumus Alatus, Philyrea latifolia, Acuba japonica, and many others. We have seen an accidental, very beautiful, specimen, in Rumex oblongifolius, but it was not permanent. A romantic garden, among some very uncommon and whimsical rocks at Plumpton, near Harrogate, was originally planted with nothing but variegated shrubs, of every species that could be procured. It might have delighted a Chinoer, but the effect was not picturesque.

This change in the colour of leaves, more or less extended occasionally to the rest of the herbage, can be considered but as a sort of disease. The plants affected with it are much more tender, and difficult of cultivation, than in their natural state, as well as less luxuriant; and witness Antirrhinum Cymbalaria, Fritillaria imperialis, and many others. Variegated Oaks are rare, and fickle. We do not recollect to have seen any Willow in this state, nor any Cherry, Plum, Currant, or Gooseberry. The Holly assumes different shades of yellow, sometimes accompanied with pink. Prunus Lauro-cerasus now and then puts forth an entirely white or colourless shoot, and we have several times met with the same circumstance in Rosa canina, but we do not know that either of these shrubs is permanently variegated.

The cause of these blotches in leaves is probably among those secrets of Nature, hardly, if ever, to be discovered. That it must confine in some quality of the soil, in which the original stock vegetated, is a probable conjecture, but no more. The variety commonly continues unimpaired, in offsets or cuttings from this original stock, in whatever soil they may be planted. Nevertheless, a shrub thus marked, or defaced, will now and then, from luxuriance of health, return to the pristine and natural verdure of its species, making
making flocks of extraordinary vigour, which soon overtop and exclude the variegated parts of the same individual.

VARIETIES, in Natural History, a word used to express an accidental change in some body, which is not essential to it, and therefore does not constitute a different species.

The naturalists of former ages have run into great errors, in mistaking the accidental varieties of plants, animals, and minerals, for distinct species. Many of them have called a plant a new species, because its flower, which should have been blue or red, is white, on account of the poornefs of the foil, or some other such reason. Mr. Ray has established a very good rule for varieties in botany: he allows every thing to be a distinct plant, which will propagate itself in its own form by its seeds; but such as, when sown, lose their difference, and run back to the old standard, he accounts varieties, however great their distinctions may appear.

In the history of fish, as much confusion has been introduced, by mistaking varieties for distinct species, as in botany. Artedi is the only author who has rationally attempted to bring this part of natural history into order in this respect, and to settle regularly the rules by which to distinguish real and effential from accidental differences.

The principal grounds of the error of supposing varieties distinct species of fish have been these: the variable and inconstant colour of fish hath been mistaken for a specific difference; in this manner Rondelius has described many varieties of the turdi, labri, and other fish, under the names of distinct genera.

Others have paid the same too great a regard to the more constant varieties of colour, which are found only to differ in degree in the several individuals of the same species, and their differences to be only in the degrees of the same colour, which is much more intense in some, and more remits in others. These differences can only make varieties of the same fish, the species remaining always the same. Of the same kind are the mistakes of those who esteem size or magnitude a specific character; and thus, out of the varieties of the same fish, occasioned by scarcity or plenty of food, or other such occasions, make larger or smaller species. The place where fish are caught is also another cause of making new species with these authors: thus, though the perca fluviatils of Bellonius, and the perca marina of other authors, be the same fish, yet they are pretended to be different species. The time of spawning is also with some made a distinction of species; and thus we find the common pike divided into three species, according to its spawning, in spring, summer, and autumn, which it does according to the heat or coldness of the climate. See Specific Names.

All these differences are false and frivolous, and the utmost they can do is to make what are properly called varieties, though few of them are sufficient even for that. A salmon caught at sea is not different from one of the same breed caught in a river; and if the perca marina, falsely so called, be a little different from the perca fluviatils, yet if its spawn will produce regular perca fluviatils, its difference can only amount to a variety, not a distinct species.

The time of spawning is no essential difference: for we daily see the change of climate make changes of that kind in all creatures; and even in the same climate, and under the same circumstances, the same species of birds will afford some individuals much earlier or later in laying their eggs than others. Artedi Ichthyol.

Varieties, in Botany and Vegetable Physiology, are certain differences between individuals of the same species, which are not sufficiently important to constitute a specific dilution, nor, however important or striking, are they permanent, except in offsets, buds, cuttings, or layers of the same individual. Even these are oberved, sooner or later, to wear out; while, on the other hand, some varieties do appear to be continued, by seed, through successive generations, at least in annual plants; but a very flight degree of observation will shew that these gradually return to their original nature; sometimes very speedily. Varieties amongst edible fruits seem to be the most numerous and the most laffing; but whether they are more to others, which, being important to mankind, pafs unnoticed, as in the Pangur tribe, may be doubted. Mr. Knight, the learned and experienced President of the British Natural Society, has convinced himself, and we believe most of his intelligent readers, that varieties of Apples and Pears have only a limited duration. (See Species of Plants.) Thus the most valuable, perhaps, of all, the Golden Pippin, and particularly the ruffet-coated kind of that fruit, is generally wearing out. It may be propagated by grafting; but the young trees, thus obtained, quickly canker, and cease to bear any fruit worth notice. Numbers of Apples and Pears, celebrated in the horticultural works of the French, and many known to have exilted formerly in England, are no more to be found. Those who plant orchards draw out admirable plans upon paper, buy trees, and wait with great complacency for the produce, till they find themselves miserably deceived. Half their trees, poftibly, bear something different from what was promised. So far they have a right to complain of an ignorant, careless, or dishonest nurseryman. The greater part of their whole flock, whether the fruit be good or bad in quality, canker, turns mofly, or dies, in a few years. Some few hardy trees only, of ordinary fruits, perhaps remain. The foil is concluded to be unfit for apples, and the affisor bears his disappointment as well as he can. This is the literal history of several orchards, which have passed under our observation. We have also seen fine trees of Golden Pippins and Nonpareils, which twenty years ago bore full crops of excellent fruit, canker and die, without any apparent cause, so that the places which knew them, know them no more. Such is the melancholy history of our orchards. But it is still more grievous to observe, that new varieties, which Mr. Knight, and some other patriotic cultivators, are obtaining every year from seed, prove far more transient than their predecessors, cankering and disappearing in four or five years. Some, however, we hope and trust, will remain, and that our descendants will not be deftitute of the most valuable of all English fruits. With this important end in view, we cannot sufficiently recommend, to those who have the means, the razing of apple-trees from feed, every year, on a large scale. It has usually been the practice of such experimentists to fell the kernels of good apples, for their purpose; thinking such more likely to yield something analogous to their parent fruit. Perhaps they may inherit too much of the same constitution, and this may be the latent cause of their own short existence. Might it not be worth while to sow the seeds of healthy wild crab-trees, whose vigour might remain in their offspring? From such, doubtless, all our valuable varieties must, at first, have originated. Who can tell that the degeneracy so prevalent among the new-raifed stocks, as to duration, may not be owing to the repeated crossed impregnation of diseased worn-out varieties, which must take place in a garden? The ornaments of our courts and drawing-rooms may descend from the heroes of Cresly and Agincourt, but our modern heroes commonly rise from the ranks, and the quarter-deck.

In the ornamental department of horticulture, varieties are
are much attended to. Cape Geraniums are raised, by crosses impregnation, which often excel their parents in size and beauty, and for a while are continued by cuttings, if not by seed. Nothing, however, can be more transitory than these ephemeral productions. We have adverted to some of them under the article Pelargonium. Double-flowered varieties are produced from time to time, either by nature or by some accident of cultivation, for which we cannot in any manner account. Thus, if we sow an hundred seeds of the common Annual Stock, Cheliranthus annuus, one, or perhaps many, of the plants may bear nothing but completely double flowers, all the reef being quite single. When such a variety occurs in any perennial, or shrubby, species of plant, it is justly prized, being capable of multiplication by cuttings, layers, &c; and when variations of colour are superadded, as in the favourite Camellia japonica, the treasures of the conservatory are still more multiplied. We must be content, in the present state of knowledge at least, to seize each vegetable Proteus as it comes in our way, without attempting to explain, or to imitate, the cause of its transformation.

Colour is, of all things, most liable to vary in the petals of flowers. Almost every blue flower is capable of changing to white, and it appears that in several instances the seeds of the white variety more generally produce their like, than those of the natural-coloured flowers change to white. But this rule is not invariably. The seeds of Canterbury Bells, Campanula Medium, whether taken from a white or blue flower, appear, as far as we can judge, to produce a great majority of blue-flowered plants, with a few white ones. The elegant varieties of the Sweet Pea, Lathyrus odoratus, seem more constant; but they are comparatively of recent introduction amongst us, and it is probable they may in time wear out, like other more short-lived beauties.

Varieties in the luxuriance or flavour of annual herbs, or their seeds, which make the riches of a kitchen garden, require, of all things, the most affidious attention of a cultivator. These are the most casual and fugacious of all things. They do, however, appear to be more within the control of a skilful gardener, than many above-mentioned; especially with regard to soil, or manure. An eminent London seedman affirms the writer of this, that he found it expedient to feed lettuce seed to a remote country, the south of France, for influence, one seafon, and its produce to Holland, or Germany, perhaps, the next, in order to preserve or improve its quality. Change of crops every body knows to be essential in farming, as well as change of seed. What are the various degrees of excellence in Wheat, barley, or other grain, but varieties, in what possibly, when originally wild, refembled but an ordinary grafs. These excellencies are kept up by culture, that is, by attention to the circumstances just detailed. Such attention is infinitely more requisite in the cultivation of high-fed, pampered, and delicate culinary vegetables, which, if at all neglected, soon return to their original kind, or more frequently vanish altogether. Varieties of Peas, obtained by crosses impregnation, are a late improvement in horticulture, which promises a more durable success. For this acquisition to our tables we are indebted to the skilful and indefatigable exertion of Mr. Knight, who has also extended his philosophical inquiries and experiments to Strawberries. It is much to be wished that the tett of distinction between a variety and a species, which this gentleman has assumed, or rather adopted from animal phylologists, may hold good. This is, their power of generating together, without limitation. That unquestionably distinct species in the vegetable king-

dom will, like the horse and the ass, produce a mule; and that such mules will, for a longer or shorter period, continue to propagate themselves, as the animal mule is said occasionally to do, we cannot deny. It is sufficient for the preservation of order in nature, that such bastard progenies are limited; nor have we any doubt that, if they were all diligently watched, their termination, sooner or later, might always be observed. But we are not the less aware of the hazard of drawing conclusions on this subject, without a sufficiently long course of observation; analogy, always in philosophy to be followed with caution, being in the present case peculiarly treacherous.

In practical botany, varieties often cause no small trouble. Linneus was among the first who, upon found principles, distinguished them from species. Tournefort, and most of his followers, enumerated all the different appearances of plants that fell in their way, without regard to their permanency, or specific distinction. Hence a plant with a blue or a white flower stands, in the works of these authors, as two different species; though manifestly the same in every other character, and perhaps produced from seed out of one and the same capsule. Linneus blames Micheli for making sixteen species out of the common Dutch Clover. (See Trifolium repens.) Of these, some indeed prove more certainly distinct species than Linneus imagined; but the reef are, many of them, distinguished by casual marks, that may or may not exist, in the same individual plant, the following seafon. Some botanists contend that the red and the blue Lychnis dioica, so different in colour, must constitute two species. We have found the larger kind, which is usually white, with a pink flower, and thinking we had made a great acquisition, transplanted it into a garden. Next year the same root bore pure white flowers, and no others. All cultivators know how Tulips, Hyacinths, Anemones, and the garden Ranunculus, differ and vary in colour, from the same seed, and even on the same root at different seafons. The fame plant of Hydranga hortensis will produce pink or blue flowers according to the time of year, or the manner in which it is treated as to foil and watering. Bog-earth generally induces the blue tint. To multiply infinaces of this fort, would lead us beyond all bounds.

Pubescence has been thought to afford a good specific distinction, and in some cases it unquestionably does. Its direction is certainly very material, and has been applied by the writer of this to discriminate species of Menthe, as it has by Dr. Roth to establish distinct species of Myosotis. But the quantity of hairiness on a plant is very variable, and can hardly be laid to mark even a variety. A perfectly smooth wild plant of Mentha horiata, the calyx and flower-flake excepted, being transplanted into a garden, proved as hairy all over as any of its brethren, the very next seafon. On the subject of the specific characters, as opposed to mere varieties, we have already been sufficiently explicit, under the head Species of Plants, nor need we here add any further illustrations.

Some botanists, even of the present day, are curious to mark varieties under each species. This may on some occasions, and in gardening books, be useful; but if their specific distinctions be well founded, each variety will of itself fall into its proper place. To dwell upon them is a trilling study, except so far as their different qualities may lead to any practical utility; or their various origins and changes, to any physiological instruction. With the latter intention, the ingenious Mr. K. Brown has, for some time past, been attentive to every strange deformity or non-

fruity,
VARIETIES.

Varieties, in Gardening, the different variations of the fame general nature from that of the parent or particular fort from which they came. They are, of course, the offspring of certain peculiar determinate forts, which vary in some accidental particular of their habits of growth, or some other circumstance, from the natural original fort, or parent plant. But although this is the case, as their variations are, for the most part, confined to some particular part or parts, they still retain the specific mark or marks of distinction of the parent plant, which discriminates them from those of other different forts. Consequently there are frequently numerous varieties from the same fort, all of which differ from it, either in their manners of growth, foliage, flowers, the economical qualities which they possess, or some other particular of a similar nature. All kinds of plants, both of the annual, biennial, and perennial descriptions, as well as those of the herb and tree fort, are liable to vary in this way. This is effected by different modes and kinds of culture, by the nature of the climate, by that of the soil, by the use of particular forts of manure and other materials, by frequent changes in their situation, by age, and in many other methods, and respects their differences in size and magnitude, their luxuriant, dwarfish, erect or trailing growths, their being smooth or prickly; the nature and shape of their leaves, as broad, narrow, entire, divided, cut, spotted, variegated, round, oval, sharp, blunt, &c.; smooth, hairy, downy; in their flowers, as single, double, proliferous, white, red, blue, yellow, variegated, &c.; in their smell, as sweet-scented, rank-scented, &c.; also in the form, size, colour, taste, quality, &c. of the fruit, in some cases, as round, oval, oblong, smooth, furrowed, warted, hairy, downy, large, small, red, green, four, sweet, compact, pulpy, &c. as in the cucumber, melon, apple, pear, gooseberry, currant, &c.; likewise, in particular inlines, in the shape and appearances of the roots, as in the carrot, the radish, the turnip, the potato, &c.; in the manner of their producing their seeds, fruits, &c.; as in the hop, spinach, hemp, &c.; and the cucumber, melon, &c. And it takes place in many other circumstances.

However, notwithstanding these different modes of variation in the particular parts of the varying plants of a peculiar fort, if those of each such fort till all maintain the same specific mark of distinction as that which characterizes and discriminates the respective natural forts from all others, it flows them all the offspring, or varieties, of the same original fort. For as every different and distinct fort, in any particular kind of plants, is discriminated by some peculiar, uniform, constant mark or appearance in some part of its growth, all the plants of the same particular kind changeably bearing exactly the same, are, notwithstanding their accidental variation in other parts of their growth, all varieties of one fort. Consequently all the plants which are produced from the seed of the same particular fort, however they may put on different forms and appearances, are to be considered as the real varieties of it.

The difference betwixt any particular fort and that of a variety, is, that a really true fort, raised from seed, will, though it may sport into many variations, still retain and keep its true and invariable mark of distinction through all its varieties; and although there may be varieties of that particular fort with different sized leaves, and colours of the flowers, &c.; if the seed of any one be sown, it will probably produce young plants of all these kinds, each having the characteristic discriminating mark of the parent.

It is, indeed, in a great measure, from plants of the feeding kind, that the different varieties of particular forts were first obtained, as in the case of the auricula, polyanthus, &c. each being a distinct fort of the same kind, and each of which contains innumerable varieties, in the colours and variegations of the flowers, first gained in this way, the feed of the same plant often producing a great diversity in this respect, each variation of colour, &c. forming a real variety; but probably not one of them with a flower exactly like that of the original parent plant: yet each variety retains the specific difference of its respective particular fort, the auricula, for instance, never changing to the polyanthus, nor that to the auricula, but the varieties of each keep their proper distinction; as the auricula, in all its varieties, contains its smooth fleshy ferrated leaves; and the polyanthus, its rough-toothed leaves. And the same is the case with the carnation, the ranunculus, the anemone, the tulip, and a great number of other flower-garden plants.

The tree kind, especially those for the production of fruit, are particularly disposed to form varieties, equally in their modes of growth, their foliage, and the fruit: for instance, one original fort of apple-tree is only admitted, but which furnishes an almost endless variety of fruit, in regard to shape, fize, colour, taste, quality, &c. as well as in the growth of the trees, so far as respects their size or magnitude, the dimensions and colours of the foliage, &c.; the specific distinction of which is, ferrated leaves, and clofetttving flowers in the form of an umbel, which runs through all the numerous varieties, however different the trees may be in size, growth, leaves, and fruit. And the same takes place in the pear, the plum, the common cherry, the peach, and many others, there being only one principal fort of each of these, but the varieties of the fruit are many in number, which, in all these sorts of trees, were originally obtained from feeding plants, that is, such trees as were raised by setting the slips or kernels of the fruit. Almost all the fruit-tree kind sport greatly in their feeding plants, so that out of hundreds of trees raised from the seeds of the best fruits, very few, if any, will produce fruit exactly like that of the parent plant, or which possesses any good perfection. Therefore, on account of the uncertainty of producing and continuing the approved sorts of fruit from feeding plants, recourse is confantly necessary to be had, in the practice of gardening, to the modes of grafting, budding, and, in some inlines, the making of layers and cuttings, in order to propagate the intended and desired sorts, or to continue and increase any good newly acquired variety.

The greater number of varieties in herbaceous plants, as well as many kinds of fruit and other trees, are of a variable and sporting nature, so that when raised from seed, there is no dependence on having the feeding plants coming again of the same fort, but varying into different sorts of one another. In cafes of this nature, the propagation of such of them as
are perennial, to continue them with certainty, is to be accomplished either by means of planting their suckers, or the offsets or slips of the roots, and in some by layers and cuttings, or in the woody descriptions by layers, cuttings, grafting, and budding; but in the annual tribe there is no other means than by sowing or setting the seed, except in some few sorts, by the planting of their cuttings, as in the chrysanthemeum, nauturtium, and some others; however, in a great number of kinds, where particular attention has conantly been bestowed in sowing the seeds from only the most perfect, they will continue tolerably permanent, and frequently come again the same, or with but very little variation.

In many sorts of plants of the kitchen-garden and annual flower kind, though there be a number of varieties in each, yet by good care, and constantly sowing seed from the most perfect plants, which wfe no signs of degenerating, they remain, year after year, permanent from seed.

But most of the perennial tribe, the herbaceous as well as the woody sorts, as being in general more variable from seed, afford great opportunities of continuing the permanency of any particular variety, by making use of the offsets from their roots, the suckers, layers, and cuttings, as well as by grafting and budding, as has been already seen.

It sometimes occurs, however, that plants, although not immediately raised from seed, will, on account of some accidental cause, vary materially from their usual natural growths, and assume quite different appearances, arising in conformance either of culture, climate, exposure, soil, age, diseases, abundance, or deficiency of nourishment, contusions, or other familiar circumstances; and by such means produce accidental varieties in some particular parts of their growth.

The aforesaid of the reality of the varieties is, in many sorts, readily and easily accomplished by a comparison of the variable plant with the specific definitions of the natural sort; and the variations of growth of the variety with the same parts in the natural plant. But still there are many varieties that require all the skill and knowledge of the most expert gardener to fully distinguish and ascertain them. It is, however, of material importance, in many cases of practical gardening, to have a nice and correct notion of the varieties of the plants which are to be cultivated, as the work can thereby be performed with greater certainty and advantage, as well as with more and better effects.

In the first volume of the Transactions of the Horticultural Society, T. A. Knight, esq., makes the following conclusions on the means of raising new and early varieties of fruits: after stating that "variation is the constant attendant on cultivation, both in the animal and vegetable world," and that "in each the offspring are constantly seen, in a greater or less degree, to inherit the character of the parents from which they spring," that as every particular sort of fruit acquires its greatest and perfect perfection in some peculiar sort of soil or situation, and under some similar mode of culture; the proper choice of such "must be the first object of the improver's pursuit; and that nothing should be neglected which can add to the fire, or improve the flavour of the fruit which it is intended to propagate. Due attention to these points will, it is contended, in almost all cases, he found to comprehend all that is necessary to infuse the introduction of new varieties of fruits, not equal merit with those from which they spring," but that, at the same time, the improver, who has to adapt his productions to the cold and unhealthy climate of this country, has still many difficulties to contend with; he has to com-
more often indebted to accident than to any plan of systematic culture; and contents himself with merely selecting and propagating from the plants of the earliest habits, which accident throws in his way, without inquiring from what causes those habits have arisen; and few efforts have been made to bring into existence better varieties of those fruits which are not generally propagated from seeds, and which, when so propagated, of necessity exercise during many years the patience of the cultivator, before he can hope to see the fruits of his labour, industry, and attention." The attempts which the writer has made to produce early varieties of fruit are, it is believed, all that have yet been made; and though the result of them is by no means sufficiently decisive to prove the truth of the hypothesis he is endeavouring to establish, or the eligibility of the practice he has adopted, it is amply sufficient to encourage future experiment on the subject.

It is noticed, that the frill fort of fruit which was subjected to experiment in this way, was the apple; some young trees of the desired varieties of which for propagation were trained to a fourth wall, until they afforded buds containing blossoms. The branches of which, then, in the following winter, were detached from the wall, and removed as great a distance from the wall as possible, in which place they continued till far advanced in their blossoms in the following spring, as to be in danger from frost. Then the branches were trained to the wall, where each blossom allowed to remain quickly expanded, and formed fruit, that in a few months attained perfect maturity; and the seeds produced plants that have ripened the fruit much earlier than other trees raised at the same time from seeds of the same fruit grown in the orchard. In this trial, the blossoms of each variety were fecundated by the farina of another kind; from which is supposed to have been attained in this as well as other similar instances a greater vigour and luxuriance of growth; but no earlier ripening of the fruits than in the plants grown by the ordinary modes of culture. The early maturity of those mentioned, is consequently ascribed to the other peculiarity of circumstances under which the fruit and seeds ripened from which they sprang.

By the same method of culture, several new varieties, that are the offspring afforded by the Siberian crab and the richest apples of this country, were obtained in the intention of providing fruits for the press that may ripen well in cold and exposed situations. The plants furnished in this manner poises a remarkable hardiness and luxuriance of growth, appearing in every way perfectly suited to answer the intended purpose. In each of these trials, some of the new varieties inherited the character of the male, and others of the female parent, in the greatest degree; and of some varieties of fruit, especially of the golden pippin, a better example was obtained by the introduction of the farina into the blossom of another apple, than by fowring their own seeds. The new variety of the Downton pippin, obtained in this manner from the farina of the golden pippin, will, if it be believed, be found, in a favourable season and situation, little if at all inferior to the golden pippin, when frill taken from the tree; but it is a good deal earlier, and probably cannot be preferred so long in a perfect state.

The next trials were on the grape, which, though less successful than the above in producing new varieties, were not less favourable to these conclusions. After fupposing a vineyard without fires in the winter, to afford a climate to the vine similar to that afforded by the southern parts of Siberia to the apple or crab-tree; the fame extensive variation of temperature taking place in it, and the sudden transition from great comparative cold to excessive heat, as productive of the fame rapid progress in the growth of the plants and the advancement of the fruit to maturity; he states that his first attempt was to combine the hardiness of the blossom of the black slufter, or Burgundy grape, with the large berry and early maturity of the true sweetwater, often confounded with the white chaffelas and white muscadine. In this case, the seedling plants produced fruit in his vinery at the age of three or four years, and in some of them it was very early; but the bunches were short and ill-formed, and the blossoms did not set by any means so well as he had expected.

On substituting the white chaffelas for the sweetwater, many varieties were obtained whose blossoms appeared perfectly hardy, and capable of setting well in the open air; and the fruit of some of them ripening a good deal earlier in the year than that of either of the parent plants. But the berries are smaller than those of the chaffelas, having less tender and delicate skins; and though not without much merit for the defect, they are generally better calculated for the press. In the latter intention, in a cold climate, it is supposed that one or two of these varieties will produce very great excellence. From the white chaffelas and sweetwater, plants have since been obtained, the appearance of which is greatly more promising; and the earliest variety of the grape which he has ever yet seen was produced from a seed of the sweetwater, and the farina of the red Frontignac. It is a very fine grape, resembling the Frontignac in colour and the form of the bunch; but it is feared that its blossoms will prove too tender to succeed in the open air in this country; a single bunch confining some berries is, however, all that has yet existed of this kind. Two new varieties of the vine, with striped fruit and variegated autumnal leaves, have also been produced from the white chaffelas and the farina of the Allipo vine: one of these has ripened extremely early, and is thought a good grape. As in all attempts to obtain new varieties of fruit, the propagator is at a loss to know the kinds which are best suited to answer his purpose, those varieties of the grape which he has employed with the most success are mentioned. In short, the facts which he has obtained on this subject, leave no doubt in his mind that varieties of the grape capable of ripening perfectly in our climate, when trained to a fourth wall, as well as of other fruits better suited to this climate than those which are now cultivated, may be readily produced; but whether the method of cultivation which he has adopted and advised be the most eligible, must be left to the decision of future and more extensive practice and experience.

Trials similar to these have been made on the peach; but it is stated that nothing more can yet be said of the result of them, than that the plants are perfectly healthy and luxuriant in their growth, affording sufficient evidence in their leaves of the good quality of the future fruit. And though he is uncertain at what age plants of this sort become capable of producing blossoms; the sudden changes in the character of the leaves and growth of thepeach ripened by him, which are now in their third year, lead him to believe that they will be in a state to produce fruit at the age of three or four years.

Upon the whole, from these and a close attention to the subject for years, it may be maintained that new varieties of every particular sort of fruit will in general be better obtained from the introduction of the farina of one variety of it into the blossoms of another, than by propagating from any single kind. Where trials of this nature are made between varieties of different size and character, the farina of the
VARIEITES.

the smaller kind should be introduced into the blossoms of
the larger, as under these circumstances it has generally,
though with some exceptions, been found that there is a
prevalence in the fruit of the character of the female parent,
probably on the following account. The seed-coats are
wholly generated by the female parent, and the regulate
the bulks of the lobes and plantula; and it has been noticed,
in raising new varieties of the peach, that when one stone
contained two seeds, the plants these afforded were inferior
to others. The largest seeds, procured from the finest
fruit, and from that which ripens most perfectly and most
early, should constantly be chosen. When it is intended to
propagate new varieties in this manner, it will be necessary
for the gardener to extract the f Stamina of the blossoms from
which he purpose to propagate some days before the farina
begins to shed. After young trees have risen from seed, a
certain time must elapse before they become capable of
bearing fruit, which, it is believed, cannot be shortened by
any means of cultivation. Pruning and transplanting are
equally hurtful; and no alteration in the character or
merits of the future fruit can be effected during this length
of time, either by manure or any fort of culture. The
young plants should be suffered to extend their branches in
every direction, in which they do not interfere with each
other in a hurtful manner; and the soil be just sufficiently
rich to promote a moderate degree of growth, without exci-
iting the plant to preternatural excretion, which constantly
brings on diseases. The foil of an old garden is par-
ticularly delusive in this way. The length of time that dif-
ferent sorts of fruit-trees require to attain the age of pu-
berty, admits of great variation. The pear demands from
twelve to eighteen years; the apple, from five to twelve
or thirteen; the plum and cherry, from four to five years;
the vine, three to four; and the rasperry, two years. The
strawberry, if its seeds be sown early, affords an abundant
crop in the following year; and he has produced several
new and excellent varieties of this fruit; but the hautboy
strawberry does not seem to propagate readily with the
other varieties, possibly belonging to an original distinct
sort. He has, however, obtained several off-spring from its
farina; but they have all afforded a feeble and abortive
blossom, and been of little value.

In another paper in the same volume, the same writer, in
speaking of raising new and early varieties of the potato,
says that those who have cultivated early varieties of this
plant, must have noticed that they never afford feeds or even
blossoms, and that the only mode of propagating them is by
the division of their tuberous roots. Alto farther, that
each variety has been found by experience, when long pro-
pagated, to gradually lose some of those good qualities
which it posseffed in the early stages of its culture; the
duration of a variety in the state of perfection, being limited
to about fourteen years. A good new variety of an early
potatoe is, of course, considered highly valuable by the
peron who raised it; and as such early varieties, according
to any method of culture heretofore practised, can only
be gained by chance from feeds of late kinds, they are not
very frequently produced. But by the method here de-
drected, feeds are readily obtained from the earliest and best
varieties; and the feeds of these may possibly, in successive
generations, finally afford much earlier and better varieties
than have yet appeared.

The cause of the constant failure of the early potatoe to
produce feed has been insufficient, and found "to be the pre-
ternaturally early formation of the tuberous root, which
draws off for its support that portion of sap, which in other
plants of the same sort affords nutriment to the blossoms
and feeds."

After taking several methods of placing the growing
plants so as readily to prevent this, he found the following
to be the best. He fixed strong flakes in the ground, and
raised the mould in a heap round the place of growth,
perfect contact with their bottom parts; and then planted
on their south sides the potatoes from which feeds were
defined. As soon as the young plants were about four
inches high, they were fastened to the flakes by means of
shreds and nails, and the mould washed away, by a strong
current of water, from the bases of their stems, so that the
fibrous roots only of the plants entered into the foil. As
the fibrous roots of this plant are perfectly distinct organs
from the runners, which give existence and subsequently
convey nutriment to the tuberous roots; and as the runners
spring from the stems only of the plants, which are, in this
mode of culture, placed wholly out of the foil, the formation
of tuberous roots is easily prevented. Whenever this is
therefore done, numerous blossoms will soon appear, and
almost every blossom will afford fruit and feeds. It is also
suggested as not improbable, that by introducing the farina
of the small and very early varieties into the blossoms of
those of larger sizes, and somewhat later habits, moderately
early varieties, adapted to field culture, and winter use, may
be obtained; the value of which to the farmer in the colder
parts of the kingdom, whose crops of this root are followed
by one of wheat, would be extremely great.

It is likewise stated by Mr. Biggs, in the above work,
that the different varieties of the apple-tree may be raised
in a ready manner by means of cuttings, and that the trees so
produced, "from healthy one-year old branches, with blo-
fom-buds upon them, will continue to go on bearing the very
finest possible fruit, in a small compass, for many years.
Such trees are also peculiarly proper for forcing, by way of
curiosity or luxury, and, it is believed, that they are
liable to canker when raised by grafting. This has
been more than once experienced in the golden pippin,
cuttings of which have remained seven years in perfect
health, when grafted, taken not only from the same tree, but
from the very branch, part of which was divided into cuttings,
cankered in two or three years. This mode of raising
young apple-trees was discovered by accident, from flitching
cuttings of these kinds of trees into the ground, as flower-
marks during a wet season, which took root.

In raising new varieties of carnations, much advantage has
lately been found from ripening the feed of the old plants by
means of placing them in the artificial heat or warmth of
some sort of houfe, frame, or other contrivance of these
kinds, as they naturally flower late in the season, and, of
course, fully ripe feed can seldom be procured in that way
for this purpose.

VARIETIES OF LAND, in Agriculture, the different sorts
or qualities of it, as they relate to the nature and manner of
its cultivation, or the uses to which it is applied. Though
no general principles are probably yet capable of being laid
down in regard to the comparative value or utility of dif-
ferent modes or plans of cultivation, or of the different
methods of proceeding in respect to crops that are laid re-
course to in different climates and situations, as the real nature
of it, and the particular circumstances to which it is
exposed and liable, in every instance, are not sufficiently
known; it is evident that all the less firm, clay, and cold
sorts of land are not so greatly benefited by much working
over, as those of the fluff and cohesive kinds, in which
more division of their parts and full aeration are essential

Vol. XXXVII. 

M necessary,
VARIGNON, Peter, in Biography, was born at Caen, in France, in 1564, and originally intended for the church; but imbibing an early taste for the mathematics, this kind of science became the object of his attention, in the profession of which he was discouraged by his relations, who obliged him to devote some part of his time to theology. With the abbé St. Pierre, who studied philosophy in the same college, he formed an intimacy; and they mutually encouraged and aided each other in their favourite studies. The abbé took him to his house, and in order to render him more independent, bestowed upon Varignon out of his own income, which was only 1500 livres a-year, 300. In 1686 the abbé took him to Paris, where he wholly employed himself in the study of mathematics, and where he formed an intimacy with Du Hamel, Du Verney, and De la Hire. From Du Verney he acquired a considerable knowledge of anatomy, whilst in return he taught him the application of mathematical reasoning to that subject. In 1687 Varignon became known by his "Projet d'une nouvelle Mécanique," dedicated to the Academy of Sciences. This treatise was much admired, and served to introduce him to two considerable places, viz. that of geometrician to the Academy of Sciences, and that of professor in the college of Mazarine. In 1690 he published "Nouvelles Conjectures sur la Pefanteur;" and he became one of the most early cultivators of the science of infinitesimals. Of his application and industry we have ample evidence in the volumes of the Academy of Sciences; his papers are numerous, and contain complete theories on the laws of motion, central forces, and the refraction of different media. In 1703 he suffered much from a severe illness, which impaired his naturally strong constitution, and reduced him for three years to a very languishing state. His physicians prohibited study, from which, however, he could not totally abstain. Having censured Dr. Wallis for asserting that there are certain spaces more than infinite, ascribed by this celebrated geometer to hyperbolas, whilst Varignon maintained that they were finite, his criticism was shewn to M. Carré, and by him caused to be printed in the Memoirs of the Academy, without his knowledge. After his recovery, he resumed his application, by republishing his "Projet d'une nouvelle Mécanique" in a new and enlarged form, by an extensive correspondence, and by reading lectures to his scholars in the college of Mazarine, as well as in the royal college, in each of which he occupied a professor's chair. In the latter part of his life, much as he valued peace, he was engaged in a scientific dispute with an Italian monk on the subject of tangents, and the angle of contact in curves. In the two last years of his life he laboured under an affectionate complaint, which baffled all remedies. At length, having finished his lecture at the Mazarine college, on the 22d of December 1722, he died suddenly on the following night. His character, says Fontenelle, was as simple as his superior understanding could require. He had no jealousy of the fame of others; for, indeed, he was at the head of the French mathematicians, and one of the first in Europe. In the discharge of every personal and social duty he was conscientiously strict. On the theory of the mathematicians, few mathematicians have laboured more successfully than Varignon; introducing into this science that mode of generalization which characterizes it, simplifying many of its principles, and resolving many questions that had not before been considered; such, especially, as relate to the doctrine of motion. His works, published separately, were "Projet d'une nouvelle Mécanique," 4to. Paris, 1687; "Des nouvelles Conjectures sur la Pefanteur," 12mo. 1692; "Nouvelle Mécanique," 2 tom. 1725; and his papers in the different volumes of the Academy of Sciences are very numerous. Montucla Hist. des Mathem. Fontenelle's Eloges des Academiciens.

VARILLIES, in Geography, a town of France, in the department of the Arribée; 10 miles W.S.W. of Mirepoix.

VARILLAS, Antony, in Biography, was born in 1624 at Gueret, in the Upper La Marche, and upon his settlement at Paris, Gaillon, duke of Orleans, made him his historiographer; and in 1653 he obtained a place in the royal library, very favourable for the prosecution of his historico-literary studies. Huet says of him, that no man ever brought to the illustration of French affairs so rich a provision of valuable observations, or so copious a store of domestic narrative. But he adds, that his excellent qualifications were disparaged by his immoderate assurance, which led him to confide in his own conjectures and speculations, and to relate with as bold acclamations things for which he had no authority, and which were altogether fictitious, as if he had been an eye-witness of them. In fact, Varillas was deficient of the most essential and estimable quality of an historian, a love of truth; and this has rendered his voluminous labours of inferior value. His leading object seems to have been the gratification and amusement of his readers. In the prosecution of this object he at first succeeded; his books were much read, and Colbert gave him a pension, which was afterwards withdrawn. In lieu of this, he contented himself with a pension which the French clergy granted him, as the reward of his services to the Catholic cause, obtained for his "Histoire des Revolutions arrivées en Europe en Matière de Religion," a mere party performance, concerning which Menage said to the author, "You have given a history of hereby fall of heretics." Bishop Burnet published a critique on part of it, which is said to have prevented Dryden from translating it; a task which was proposed to him, after his conversion to Popery, by James II. Bayle, and many others, have detected the errors and falsifications of Varillas. As his writings, which chiefly relate to French and Spanish history, are scarcely ever read or cited, it is needless to copy their titles. Varillas died in 1696, in easy circumstances, so that he left several legacies for pious purposes. Moreri. Huet. Nouv. Dict. Hlit. Gen. Biog.

VARINAS, in Geography, a province and city of South America, which in the year 1787 was detached from the government of Maracaibo, and made a separate government, constituted at the expence of those of Venezuela and Maracaibo. The chief has only the title of political governor, although his functions, in the district assigned to him, are the fame as those of other governors, in the civil, military, and religious
VAR

religious departments. He has also, like them, a galaey of 10000 dollars a-year. In order to secure its defence, a military was raised in 1803, and a garrison allotted to the city of Varinas, consisting of a company of 77 men. Varinas has been long known in the European markets, from the reputed quality of the tobacco which its territory produces; though it is in fact inferior to that which is raised elsewhere, particularly at Cumanacoa, in the province of Cuman. However, fugar, coffee, cotton, indigo, and in general all the fruits of the torrid zone, find here a soil adapted to each, and their quality is unrivalled. The commodities of this district are transported chiefly by water to Guiana; the shipping-place being five leagues below the city, at a spot called Tocunos. Within the jurisdiction of Varinas are also very large commons, furnishing a number of beves and mules, that are exported by the Oronoko, or confumed in the province. This city enjoys a tolerably pure air, and its inhabitants are reckoned at 6000. The public edifices consist of one parish church and an hospitol. It lies in N. lat. 7° 40', 100 leagues S.E. of Caracas.

VARIN-KEY, a small island in the Spanish Main. N. lat. 11° 10'. W. long. 83°.

VARIOLA, in Surgery, the small-pox. See INOCULATION and SMALL-POX.

V. VACCINA, the cow-pox, sometimes termed by modern medical writers vaccinia. See COW-POX and VACCINATION.


Eff. Ch. Receptacles cup-shaped, with a torn border from the crust, powdery, with a ferial disk beneath.

The whole of this genus was confounded by Linnaeus under his Lichen fagineus, and L. laetus, so far at least as its species were then noticed. They now amount, in the late work of Acharius, to ten, all of a crustaceous nature, found, some on the trunks of trees, others on rocks or walls, one on the ground. We have several, of British origin, to add to this list.

1. V. velata. Veiled Varioarla. Achar. n. 1. (Lichen velatus; Engl. Bot. t. 2062.) Parmelia velata; Turner. Tr. of Linn. Soc. v. 9. 143. t. 12. f. 11.—Crust limited, tarantaceous, thin, rugged, greyish, with a pale edge. Receptacles small, crowded; disk yellowish, veiled with a white membrane; border thick, even, of the substance of the crust.—Found by Mr. W. Borrer, but rarely, on the bark of afth-trees in Suffolk. The crust is thin, spreading in roundish patches, two or three inches broad, of a greenish-grey, corrugated in the disk, minutely fibrous at the edge. Receptacles numerous, sfiglike, about a line in diameter, pale salmon-coloured, with a thick smooth border, from which a white membrane is drawn across the disk, so as entirely to conceal that part.

2. V. multipunctus. Many-dotted Varioarla. Turner. Tr. of Linn. Soc. v. 9. 137. t. 10. f. 1. Achar. n. 2. (Lichen multipunctus; Engl. Bot. t. 2064.)—Crust ash-coloured, warty, rugged, tarantaceous, thin, with a fibrous edge. Receptacles hemispherical, with a white, aggregate, powdery disk, and smooth, lobed border.—Found, not uncommonly, on the trunks of beeches in Suffolk, by Mr. W. Borrer.—Nearly akin to the last, but the crust is more of a grey hue, and less uneven, though becoming rugged and warty by age. It changes nearly to white in drying. Fructifications the size of the leaf, but essentially differing in the want of a separate membranous covering, and in having each receptacle marked with three or four depressions, making for many distinct disks, in one thick lobed border. The surface of these disks is white and powdery; their inside pale chefnut.

3. V. globulifera. Veficle-fruiting Variolare. Turn. Tr. of Linn. Soc. v. 9. 139. t. 10. f. 2. Achar. n. 3. Prodr. Fl. Grac. n. 2432. (Lichen globuliferus; Engi. Bot. t. 2008.)—Crust spreading, faintly bordered, rugged, greyish-tinged with white powdery warts. Receptacles spherical, close; at length burking, with a thin ragged border, and blackish disk.—This also was discovered by Mr. W. Borrer, growing on the trunks of beeches and oaks in Suffolk, but rarely. Dr. Sibthorp met with it in Greece. The crust agrees in appearance with the following, but the globular vesicles, of the size of small peas, scattered over the disk, and each lodging a blackish receptacle of seeds, are peculiar to the present species.

4. V. faginea. Common Bitter Variolare. Perf. in Uit. Annal. falc. 7. 24. Achar. Meth. 12. Prodr. Fl. Grac. n. 2433. (V. communis; Achar. n. 4. Liehen fagineus; Linn. Sp. Pl. 1608. Achar. Prodr. 27. Hoffm. Enum. 18. A. t. 2. f. 4.)—Crust cartilaginous, rugged, polished, greyish, bordered with brown. Receptacles prominent, hemispherical, measly, very white, with a pale, flattish, at length naked, disk.—Very common on the trunks of beech, fycamore, oak, &c. throughout Europe, from Sweden to Greece. The crust, in a perfect state is circular, grey or greenish when young, corrugated, but with a smooth polished surface, and circumscribed by a thin border, elegantly coloured with concentric shades of brown. Numerous, prominent, almost flaked, tubercular receptacles are scattered over the central part, which are very white, especially in wet weather; powdery and somewhat convex in their disks, with a clumpy indiffluent kind of border. By age these, like the crust, become of a dirty white. Mr. W. Borrer has first observed a very bitter tallow in this species, not immediately perceptible, but after a while very strong, disagreeable and permanent, like the flavour of the Cyclamen root. No other species of Variolare has been found to have this bitterness.

We know not by what accident the learned Acharius, generally so accurate, has transferred it to our data, to which it has therefore called attention. His specific characters are so similar that the two species leave no doubt of what he intends under each, though we do not presume to decide on all his synonyms. This being the case, we do not feel authorized to change the old Linnaean name, though we readily allow that Linnaeus here confounded two species.

5. V. diseoides. Flat-cupped Variolare. Perf. in Uit. Annal. falc. 7. 23. Achar. Meth. 14. (V. amara; Achar. n. 5. Lichen diseoides; Achar. Prodr. 28. Engi. Bot. t. 1714. L. fagineus; Hoffm. Enum. 19. B. C. t. 2. f. 4. 5. L. albeleans; HUDF. 529. L. caespitosa; Light. 807. Lichenoides candidum et farinaceum, tentella ferre plania; Dill. Mufc. 131. t. 18. f. 11.)—Crust cartilaginous, cracked, somewhat rugged, polished, greyish, bordered with brown; at length powdery. Receptacles flatish, measly, very white; at length concave, deprefled, with a dilated torn border.—This is probably as common as the preceding, with which it has been confounded. The chief mark of distinction consists in the little elevation of its receptacle, which, after discharging their powdery contents, become quite concave, with a thin expanded margin. Hence the present plant has been separated by several botanists from faginea, even without their advertizing to its infidelity, remarked by Mr. W. Borrer.
VARIOLITE, in Mineralogy, a name given by some mineralogists to porphyritic rocks, in which the imbedded sublimes
VAR

substances are imperfectly crystallized, or are rounded, giving the hone a spotted appearance.

VARIOREM, in Matters of Literature, a term or phrase of abbreviation, and for an edication of a clastic author, printed in Holland, with the notes of divers authors upon it: Cum notis variorum, or cum selectis variorum observationibus.

In this fenfe we say, Plautus variorum; a set of Dutch variorum, &c. Many of the variorum are valuable editions.

The word is the genitive plural of the Latin varius, different, divers.

VARIS, in Ancient Geography, a place of the isle of Albion, on the route from Segontium (Caerarnon) to Deva (Chelter), between Conovium (Caer-Rhydn) and Deva; supposed to be Bodvury; 32 miles from Deva, or Chelter.

VARIVS, in Ichthyology, a name used by most authors for a small fresh-water fish, common in brooks and running waters, and well known in England by the name of the minnow.

VARIVS Mus, in the old authors of Zology, a name used for the fame creature they otherwise called mus ponticus; which seems to have been no other than the European flying squirrel.

VARIX, from varius, irregular, in Surgery, denotes an uneven swelling of a dilated vein. The tumour is soft, generally not painful, and presents an appearance as if fludled with several knobs, or tubercles, which correspond to the valves in number and situation. The diseased vein is also elongated as well as dilated, and describes in its course a variety of windings or convolutions. A particular account of the symptoms, causes, and treatment of this common disease, will be found under the head of Varicoso Fina.

VARIX, in Animals, a sort of puffy dilatation or enlargement in some part of a vein, forming a kind of knot. It mostly happens in the veins of the legs, and is of the nature of spavin. It may readily be removed, on its tiff appearance, by the use of cold solutions, and applications of that sort, frequently applied, and suitable bandages.

VALER, in Geography, a town of Germany, in the bishopric of Munster; 4 miles N.N.W. of Coesfeld.

VALLET. See VALET.

VARMAT, in Geography, a town of Hungary; 12 miles N.N.W. of Zatmar.

VARO, a river of Italy, which runs into the Taja-mento, 2 miles N. of Latifiana, in the country of Friuli.

VARNA, in Ancient Geography, a town of Asia, in the interior of Media. Ptolomy.

VARNA, in Geography, a sea-port town of European Turkey, in Bulgaria, situate on a gulf or bay of the Black sea, to which it gives name, at the mouth of the river Varna; the fee of a Greek archbishop. In the year 1443, Ladislaus, king of Hungary, was defeated and slain by Amurath I. emperor of the Turks, near this town; 144 miles N. of Conflantinople. N. lat. 43° 14'. E. long. 27° 10'.

VARNA. See VRAN.

VARNAV, a mountain of Greece, near Athens.

VARNAVIN, a town of Ruflia, in the government of Kollrom, on the Vetelga. N. lat. 57° 10'. E. long. 45° 14'.

VARNI, in Ancient Geography, a people of Asia, in Bacstria. Ptolomy.

VARNISH, or VERNISH, Vernix, a thick, viscous, glossy liquor, used by painters, gilders, and various other artificers, to give a gloss and luster to their works, as also to defend them from the weather, dust, &c.

There are divers kinds of varnishes; some of the principal of which are as follow:

VARNISH, Amber, is prepared in the following manner: Put four ounces of amber into a crucible, and melt it with a small degree of heat, and pour it out upon an iron plate; when cool, reduce it to powder, and add to it two ounces of drying oil, that is, linseed oil thickened by boiling it up with lighthouse, and one pint of oil of turpentine, and diffuse the whole together into a liquid varnish.

This simple amber varnish is of great use for many purposes, and is said to be the basis of the fine varnishes which we see on coaches, and may be prepared without drying oil, by boiling the powder of amber in linseed oil, or in a mixture of linseed oil and oil of turpentine. Drying oil is commonly used by the workmen; but Dr. Lewis thinks it more eligible to take the oil unprepared, that the boiling requisite for giving it the drying quality may be employed at the same time in making it act upon the amber. It has generally been thought, that amber will not at all diffuse in oils, till it has suffered a degree of decomposition by fire. But Hoffmann relates an experiment, in his Observations Physico-Chemical, which discovers the solubility of this concrete in its natural state. Powdered amber, with twice its quantity of oil, was put into a wide-mouthed glass; and a digestor, or strong copper vessel, being filled about one-third with water, the glass was placed in it, the cover of the digestor wereed down tight, and a moderate fire continued an hour or more: when cold, the amber was found dissolved into a gelatinous, transparent mass. In Dr. Stockar’s Specimen Inaugurale de Succino, printed at Leyden in 1760, we have an account of other experiments made by himself, in conjunction with M. Ziegler of Winterthur; from which we learn, that by continuing a simmering heat twelve hours, and coning the vapour as much as it returns vessels would bear without bursting, (the danger of which was avoided by making a small notch in the cork-stoppers,) powdered amber dissolved perfectly in expressed oils, in turpentine, and in balm of copaiba: a strong copper vessel, with a cover screwed on it, seems most eligible; and for the greater security, a vessel may be made in the cover, kept down by a spring, that shall give way before the confined vapour is of sufficient force to endanger bursting the vessel. Moreover, by digestion for a week in clove-stopped glass vessels, in which the compresse could not be very great, solutions equally perfect were obtained. The solution in rape-seed oil, in oil of almonds, was of a fine yellowish colour; in linseed oil, gold-coloured; in oil of poppy-seeds, yellowish-red; in oil olive, of a beautiful red; in oil of nuts, deeper coloured; and in oil of bays, of a purple-red. The solutions made with one third, and with balm of copaiba, were of a deep red colour, and on cooling, hardened into a brittle mass of the same colour. All the solutions mingled perfectly well with spirit of turpentine. Those made with the oils of linseed, bays, poppy-seeds, and nuts, and with balm of copaiba and turpentine, being diluted with four times their quantity of spirit of turpentine, formed hard, tenacious, glossy varnishes, which dried sufficiently quick, and appeared greatly preferable to those made in the common manner from melted amber.

An amber varnish may also be made by boiling down some colophony, or turpentine, till it becomes black and friable, and mixing this in a glazed earthen vessel, sprinkling in, by degrees, twice as much amber in fine powder, with the addition of a little spirit or oil of turpentine now and then. When the amber is melted, sprinkle in the same quantity of linseed oil, continuing to mix them, and to add more spirit of turpentine, till the whole becomes fluid; then strain out the clear
clear through a coarse hair bag, pressing it gently between hot boards. This varnish, mixed with ivory-black in fine powder, is applied, in a hot room, on the dried paper paste of which the pâAPER mâché is made; which is then set in a gently heated oven, next day in a hotter oven, and the third day in a very hot one, and let stand each time till the oven is grown cold. The paste thus varnished is hard, durable, glossy, and bears liquors hot or cold. Lewis's Com. Phil. Techn. p. 367.

An amber varnish may be otherwise made by melting eight ounces of Chio turpentine, and when fluid, pouring into it, by degrees, a pound of fine powdered amber, and flurring it; and when it is properly mixed, setting it on fire for half an hour, taking it off, and flurring it well, and adding to it two ounces of the white colophony. It is again to be put on a brisk fire, and covered clothe; when the mass is perfectly fluid, and taken off to cool, a pound of linseed or poppy oil, made drying, is to be poured in boiling hot, and flurred till it be incorporated with the mass; and then a quart of hot turpentine is to be added, and the whole well flurred. Let it then cool, and strain it off for use; when, if it has been properly made, it will be quite clear. See GILDING on ENAMEL AND GLASS.

VARNISH. Black, for japanning on wood or leather, is prepared by mixing lamp-black or ivory-black with a proper quantity of a strong solution of gum lac in spirit of wine. (See JAPANNING.) The lamp-black is commonly preferred to the ivory-black, on account of its uniting better with the fluid, and working smoother. The thicker part of the varnish, which settles at the bottom, is used with the lamp-black for the first coatings, and the mixture applied at different times, in a hot room, one layer after another, is dry, till a full body of colour is obtained; after which, the piece is wafted over in the same manner several times, with the finer part of the varnish, just tinged with the lamp-black, so as to make a coating of sufficient thickness to bear polishing with tripoli. Iron fruit-boxes, mourning buckles, &c. are coloured black, by making them considerably hot, and applying on them in this flate a thick mixture of lamp-black, with a certain varnish called gold-size, consisting of the drying oil, turpentine, and the pigment called Naples yellow; but the yellow might be omitted, and the varnish formed at once by mixing lamp-black with a proper quantity of turpentine and drying oil. The workmen, as Dr. Lewis says, frequently employ, as varnish for metals, a mixture of lamp-black, with the fuscumings, &c. of different oil paints; the mixture is applied with a pencil, and the piece afterwards baked in an oven with a heat somewhat greater than is used for the pâAPER mâché. Naples yellow, a superfine ingredient in the black varnish, is the basis of the dark-brown which we see on some iron fruit-boxes; this pigment changing to a brown in baking with the varnish. Lewis. See LACQUER.

The excellent black varnish of China and Japan, which has been hitherto imperfectly imitated in Europe, and which was formerly thought not to be a natural composition of resins, being coloured with black pigments, has been discovered by the later travellers into those countries, to be a native juice, exuding from incisions made in the trunks of certain trees. Mr. Miller, in consequence of a letter from the abbé Mazeas to Dr. Hales, containing a communication of the discovery of a plant by the abbé de Sauvages, which he calls toxicoDNDRON CAROLINIANUM folius pinnatis, florisbus minimis berbaceis, and the black juice of which adheres, without the leaf acrimony, to cloth with more force than any other known preparation, took occasion to shew, that this American toxicoDNDRON is the famous species of plant from which the inhabitants of Japan procure the varnish with which they stain all their utensils; adding, that the Calicutans are also painted with the juice of this shrub. This American toxicoDNDRON (see POISON-TREE) is the same plant, as he affirms, which is mentioned by Kämpfer, in his Amoenitates Exoticae, by the title of arbor varnicifera legitima, folio pinnato juglandi, frutu rosanofo ciceris fuscis; i.e. the true varnish-tree, with a walnut-tree leaf, and a branching fruit like cicers. It is called by the inhabitants of Japan frize, or leftza-dajx, and also ura, or ura-na. Kämpfer has also described the wild or spurious varnish-tree, called fajf-no-ki by the natives, which he says agrees with the other in every part, except that the leaves of the trunks are narrower; but Mr. Miller is of opinion that this is a different species, if not of a different genus, from the true varf; and says, that the varnish yielded by it is of little effect. The account which the Jesuits at China have given of the manner in which the varnish is procured, is as follows: they first cut the back of the branches of the shrub, in different places, with a knife; and thus there flows out a white clammy juice, which is received into wooden vessels; and when these become dry, they tap the stems of the shrubs near the roots, so that all the juice is drawn out of them. The shrubs are then cut down to the ground, and from their roots new stems arise, which in three years will be fit for tapping. The juice turns black when exposed to the air; it heats without turning four; but being of a poisonous nature, it is dangerous to handle it. This native varnish wants hardly any preparation; but if any dirt should happen to mix with it, it is cleaned by being strained through coarse gauze, put into wooden vessels, and covered with an oil called ioj, and a skin, in order to prevent its evaporating. In this state it is carried over to China and Japan for sale. The shrub is chiefly cultivated in the provinces of Tф-kooko and Tф-kooko, and the best varnish, according to Kämpfer's account, is produced about the city Jaffino; but there is an ordinary sort of varnish, called nam-rai, brought from Siam, which is collected in the province of Corfama, and in the kingdom of Cambodia, from the tree anacardus, called by the inhabitants tong, or tu-ra, the fruit of which is called in our shops anacardium. To collect this liquor, they bore a hole in the trunk, and insert a tube. By this method they procure as much of it as is sufficient, not only to varnish all the utensils of China, Tonquin, and Japan, but it is even exported in close wooden vessels to Batavia, and other parts of India. This varnish, says Kämpfer, is not only fold quite pure, but likewise coloured, with Chinese native cinnamon, and a kind of red earth, which the Dutch formerly, but now the Chinese bring them, and also with the materials of which they make their common Japan ink. Mr. Ellis has controverted the opinion of Mr. Miller, and endeavoured to shew that the American toxicoDNDRON is not the same with Kämpfer's arbor varnicifera legitima; alleging, that Kämpfer's description of the true varnish-tree does not agree with this toxicoDNDRON; and he inclines to the opinion, that the Carolina pinated toxicoDNDRON, or poifon-an, is the same with the fajf-no-ki, or spurious varnish-tree of Kämpfer. Mr. Ellis also thinks it is not improbable, that the varnish mentioned by Kämpfer, as obtained from the oriental anacardium, is the same with that mentioned by father d'Incarville, in the Phil. Trans. vol. xlvi. p. 254, called tong-yew; which is so universally used in China for preferring and ornamenting their furniture. See this controversy between Mr. Miller and Mr. Ellis at large, in Phil. Trans. vol. xliv. part i. p. 157—166. part ii. p. 806—876. vol. i. p. 430—456. See POISON-TREE, LINEN, and JAPANNING.

VARNISH. BROWN, for Metals. See Black VARNISH, supra.

VARNISH,
VARNISH.

Varnish, Copal Oil, called in France varnish marins, is made by pouring into a well-glazed strong earthen pot, in shape resembling a chocolate pot, and in size large enough to hold about a gallon, and made warm, four ounces of Chio or Cyprus turpentine, and when this is diffused, eight ounces of finely powdered amber; mingling them well, and setting them on the fire for a quarter of an hour; take off the pot, and pour gently into it a pound of copal, finely bruised, but not powdered; stir the mass, and add four ounces of Chio turpentine, and a gill of warm turpentine oil; then let it on a brisk fire for about half an hour, and taking it off, stir the contents well, and add two ounces of the finest and whitest colophony. Let the pot be put on a very brisk fire, and remain till the whole is diffused, and become as fluid as water; let it be removed from the fire, and remain for a few minutes, and then gradually pour in twenty-four ounces of poppy, nut, or linseed-oil, made drying, and boiling hot, and stir the mass with a deal flack. When the gums and oil are thoroughly incorporated, set them over the fire for a few minutes, Still stirring them about, and let them boil once up; and having taken off the pot, pour into it a quart of hot turpentine; stir them together, and give them one boil up; take off the pot, and pour into it a pint more of hot turpentine, Still stirring it well. If the gums are thoroughly melted, and well incorporated, the varnish is made; which, being cool, is strained through a close cloth into another vessel, and, if it be too thick, thinned with oil of turpentine, till it becomes of the consistence of linseed-oil; strain it a second time, bottle it for use, and let it stand a month, at least, before it is used. This varnish is used for coaches, cabinets, &c.; and the piece, whatever it be, after having been varnished smoothly, and dried in the intervals half a dozen times, and suffered thoroughly to dry, must be rubbed with a wet coarse rag, dipped in pumice-Flone, powdered and sifted, till the streaks of the brash and all blemishes are removed. When it is perfectly smoothed, washed, and dried, the coats of varnish are to be repeated, for ten or twelve times, till there be a sufficient body. After having again used the powdered pumice-flone, and washed it off as before, let it be rubbed with fine enery, till the surface becomes even and smooth as glass; then with powder of fine rotten Flone, till by palting the palm of the hand two or three times over the same place, you discover a gloss equal to that of glass: having dried it clean, dip a rag, or piece of flannel, in sweet oil, and rub the surface a few times over, and clear it off with fine dry powder, flour, or the hand; and a piece of fine flannel, dipped in flour, and rubbed over it, when cleared of the oil, will give it an excellent lustre. Between every coat of varnish it will be advisable, if the subject admits of it, to let it in a warm oven; or to heat the varnished pieces by roves. See COPAL.

Varnish, Gold-coloured. See LACQUER.

The composition of a gold-coloured varnish, used by the English artists for brash and silver, was communicated to some of the French academicians in 1720, by Mr. Scarlet, and in 1735 by Mr. Graham, and published in the volume of the French Memoirs for 1761. It is as follows: Take two ounces of gum lac, two ounces of yellow amber, forty grains of dragon's blood in tears, half a drachm of saffron, and forty ounces of good spirit of wine: infuse and digest in the usual manner, and then strain through a linen cloth. The piece to be varnished must be heated before the liquid is applied: it receives from the varnish a gold colour, and may be cleared, when fullled, with warm water.

Varnish for preserving polished Iron from Rust. See IRON.

Many methods have been used for preserving iron utensils from rust, as animal fats, oils, boiled oil mixed with melted lead, &c. Homberg's salve for this purpose consists of two pounds of hog's-lard, an ounce of camphor, and as much black lead as will render the mixture of an iron-colour; when this is used, the iron must be previously heated. M. Reaumur has discovered a better composition for this purpose: it is oil, infiltrated by being exposed to the air in flat shallow vessels, so as just to cover the bottom, mixed with a solution of copal in spirit of wine: this forms an elegant hard varnish, which, rubbed on polished iron, made a little hotter than the hand can bear, will cover it with a solid, thin, transparent coat, without any injury to its colour or appearance. See RUST.

Varnish, Laca, is made of gum laca and spirit of wine, frequently shaken till the gum be dissolved, then strained, and the clear liquor decanted off. The laca ought to be of the kind called seed laca. (See LAC.) Three ounces of this, well purified by repeated ablation of water, dried and powdered grofely, should be put into a bottle with a pint of rectified spirit of wine, so as to fill about two-thirds of it, and the bottle placed in a gentle heat; proceeding as above: though for varnishing ordinary woods, shell laca is often used. For this purpose, five ounces of the best shell laca should be grofely powdered, and put into a bottle, holding about three pints or two quarts, with one quart of rectified spirit of wine; and placed in a gentle heat: the mixture must be filtered through a flannel bag. To this varnish, the colours used in varnish painting may be added, and properly diluted with rectified spirit, and kept in phials, or tin vessels closely stopped for use. But this will not stand against the weather.

For various preparations of this kind, see JAPANNING and LACQUER.

Varnish, Maltich, is made by putting five ounces of powdered maltich into a proper bottle, with a pound of spirit of turpentine, and letting them to boil in balneo Marit, till the maltich be diffused, and straining the solution through flannel. This varnish may be converted into a proper varnish for painting, by grinding one ounce of gum anime on a flone with water, till it becomes an impalpable powder; then drying it, and grinding it again with half an ounce of turpentine, and afterwards with the proper colours, and moistening it with the maltich varnish, till the mixture be of a due consistence for working with the pencil. It must then be kept in phials or tin vessels, and diluted, as there may be occasion, with spirit of turpentine.

Varnish for preserving Paintings. See PICTURE.

For this purpose some have recommended the following composition: viz. half a pound of gum fandarac; an ounce and a half of Venice turpentine; three-quarters of an ounce of each of the gums anime and copal; half an ounce of maltich; benzoin, gum elemi, and white resins, each two drachms, and one pound of rectified spirit. The benzoin and gum anime powdered, are put with the Venice turpentine into a phial, with eight ounces of the spirit of wine: the copal and resin powdered are also put in a phial with six ounces, and the powdered gum elemi, with two ounces of spirit of wine. The several phials are frequently shaken, till the gum, &c. are dissolved; then the solutions are strained through a fine linen in our bottle, and when the mixture has stood some days, it is decanted off clear, and kept in a separate bottle for use. Some have substituted the farcocola for the copal. Another composition is formed, by dissolving maltich and fandarac, grofsly powdered,
VARNISH, White, is usually made of gum sandarac and gum mastic, diffolved in spirits, left to settle two days, then strained through a linen cloth, and, after standing some time, the clear poured off, and bottled for use.

The more curious artists diffuse the two gums separately; and having made a separate varnish of each, mix them occasionally, as their work requires a stiffer or a softer varnish.

But for the left white varnish more gums are required; viz. Venice turpentine, gum copal, elemi, benzoin, anime, and white resin.

Befides these, there are hard and soft varnishes, or grounds, used by the etchers and engravers. See Engravers' Varnish, which is also used for a kind of glossy coat, with which potter's-ware, Delfe-ware, China-ware, &c. are covered, to give them a smoothness and lustre. Some preparation of lead is the varnish ordinarily used for the first; and earths for the second. See GLAZING and POTTERY.

The true varnish used by the Chinefe and Japanefe, to give that inimitable lustre to their porcelain, is one of the grand secrets in that manufacture; and is one of the great things wanting, to make Delf and French ware vie with the Chinefe. Several have described the preparation of it, particularly Kircher; but none ever succeeded in the trial. See Porcelain and Varnish, supra.

VARNISH is also a term applied to the colours which antique medals acquire in the earth.

The value of a medal is heightened by a beauty, nature alone was able to give, and art has never yet attained to counterfeit: we mean the colour or varnish with which certain foils tinge the medal; some with a blue, almost as beautiful as that of a turcois; others with an inimitable vermilion colour; and others with a glossy shining brown, infinitely beyond any of our figures in bronze.

The most usual varnish, however, is a fine green, which hangs to the most delicate strokes without effacing them; much more accurately than the finest enamel does on metals. Brass alone is susceptible of it; for as to silver, the green rust that gathers on it, always spoils it; and it must be scour'd off with vinegar, or lemon juice.

There is also a false or modern varnish; which the falfiers of medals give to their counterfeits, to give them the air of antiquity: it is discovered by its being softer than the natural varnish, which is as hard as the metal itself.

Some lay their spurious medals under ground, where they contract the degree of varnish, that they impose on the less knowing: others use sal ammoniac, mixed with vinegar; others the acid spirit of nitre, &c.

VARODOPA, or VERODOPA, in Ancient Geography, a province in the environs of Macedonia, according to Eutropius. Ortelius makes it a country of Thrace, writing it Rodopa.

VAROE, in Geography. See VARIO.

VAROLO, Costanzo, in Biography, was born at Bologna in 1542, and became a professor of phyfic and surgery in his native city. In 1572 he was invited by pope Gregory XIII. to settle at Rome as his first physician, and professor in the college of Sapienza. He was advancing in reputation by his anatomical discoveries, as well as in his practice of medicine and surgery, when a premature death cut him off in his 53d year of his age. He was particularly distinguished in the anatomy of the brain, which he described in his work "De Nervis Opticis nonnullis aliis prae coetu communes Opinionem in Humano Capite observavit Epifola ad Hieronymum Mercuriale," Patav. 1570. Among the parts of the brain which he discovered, or more accurately described, was that known by his name, the "Pons Varoli," formed by the union of the crura cerebri and cerebelli, and the place whence several nerves originate. After his death was published "De Resolutione Corporis Humani," a work which is a compendium of anatomy, chiefly according to the ancients, but with several new observations by himself. Haller. Eloy.

VAROLO Pons, in Anatomy. See Pons.

VARORE, in Geography, a town of Hindoostan, in Daramaul; 14 miles N. W. of Darcumpoor.

VAROTARIO, Dario, in Biography. See Paduano.

VARPA, in Geography, an island near the N. E. coast of Sumatra, about 50 miles in circumference. S. lat. 2°. E. long. 100° 29'.

VARRO, Marcus Terentius, in Biography, the most learned of the ancient Romans, received from Pompey the Great, in the piratical war, a naval crown, and joined this chief in the civil war against Caesar; but afterwards submitting to the latter, he was employed by him in making a collection of books for the public library which he proposed to establish at Rome. The death of Caesar prevented the accomplishment of this design; and Varro, being involved in the proscription by the triumvirates, escaped with his life, but with the loss of his library. After the restoration of tranquillity, he retired for the prosecution of his studies, and composed books till his 88th year. His life was prolonged to the age of 90, and he died about the year B. C. 27. He is highly extolled for his various talents and literary performances by ancient writers, and particularly Cicero in his "Academics." Aulus Gellius cites a pasage from Varro, in which he declares of himself, that to the 70th year of his life he had composed 490 books, and he continued to write to his 90th year. The subjects on which he wrote were grammar, eloquence, poetry, the drama, history, antiquities, philosophy, politics, agriculture, nautical affairs, architecture, and religion. He was also the first Latin author of that species of satire called the Menippian, from Menippus, a Greek, its inventor, which was written in prose, with a mixture of verse in different measures. (See Menipean.)
VAR

Menippus.) Such and so pre-eminent was the reputation of Varro, that when Aemilius Pollus, in the reign of Augustus, opened the first public library at Rome, and placed in it the effigies of various learned personages, he was the only living writer who had the honour of this distinction. The only relics of his numerous works are six books, in an imperfect state, out of twenty-four, which he composed on the Latin language, with three books on agriculture, and a few fragments of his satires and epigrams. The former are printed among the "Auctores de Lingua Latina," and the latter among the "Auctores de Re Rutilica."


Gen. Ch. Cat. Perianth of one leaf, inferior, tubular, with five long, slender, recurved teeth, permanent. Cor. of one petal, tubular, tube cylindrical; limb in five deep spreading segments. Stam. Filaments five, awl-shaped, the length of the corolla, inserted into its tube; anthers oblong, incumbent. Fil. Germen superior, ovate; style long, the length of the corolla; stigma four, bristled-shaped. Peric. Drupa ovate, of one cell, inclosed in the swelling calyx, but not connected with it. Seed. Nut roundish, of four cells. Eff. Ch. Corolla five-cleft. Calyx tubular. Drupa superior, covered with the permanent calyx. Nut of four cells.

A West Indian genus of shrubby plants, with simple, alternate, rarely almost opposite, rough leaves; and terminal, aggregate, rather ornamental, flowers. They are little known in our flves, nor has any one species as yet been exhibited in our popular periodical works. Varroonias are next akin to Tournefortia (see that article) but the leaves deeply divided calyx, and four slender filaments, are sufficient to mark the present genus, without advertising to their fruits, which are not in all cases well understood.

1. V. lineata. Round-skiped Varroonia. Linn. Sp. Pl. 275. Willd. n. 1. Ait. n. 1. Swartz Obs. 87. (V. fruticosa, foliis rugosis, ovatis, subhirsutis, ferratis, alternis, capitulis subrotundis; Browne Jam. 172. t. 13. f. 2. V. humilis; Jacq. Amer. 41. Ulmi anguillofoci facie Baccifera jamacenseis, foliis supemae fiscbris subifinis villosis, floribus flavis perupulillos, frustra botryoide monopofero; Pluk. Almarg. 395. Phyt. t. 328. f. 57.)—Leaves lanceolate, minutely hairy, marked with brown depressed veins. Flower-flakes mostly axillary, combined with the fruit-flakes. Spikes globose.—Common in the lower woody lands of Jamaica. The flow is three or four feet high, with many slender, round, downy, crooked, entangled, leafy branches. Leaves spreading, or rather dependent, two inches long, taper-pointed, dilately and irregularly serrated; roughish, like a very fine file, with minute rigid hairs above; densely downy and hoary beneath. Fruit-flakes hairy, a quarter of an inch long, united for half their length, to the base of each simple, solitary, downy flower-flake, which is about half the length of the leaf, and bears a round head of small whitish or yellowish flowers. Pluckeius's figure is a much better representation of the Linnaean specimen from Browne himself, than his own plate, particularly with respect to the situation of the flowers. We cannot but suspect some error, and that the said plate may represent a species not hitherto well defined.

2. V. bullata. Blistered Varroonia. Linn. Sp. Pl. 275, excluding Jacquin's syonym. Am. Acad. v. 5. 394. Willd. n. 2. Swartz Obs. 88.—Leaves ovate, veiny, rugose, rough with callous tubercles and bristles. Spikes globose, on long rough flake, from the forks of the Rem.—Native of Jamaica. The Linnaean specimen is from Browne, but does not answer to the description of either of his species. The branches are forked, extremely rough with minute warts, and rigid ascending bristles, as are likewise the fruit-flakes and flower-flakes. Leaves an inch and a half or two inches long, about four times the length of their flake, nearly elliptical, acute, ferrated, reticulated with copious veins, and minutely blistered in the interstices; besprinkled on the upper side with callous tubercles and bristles, which turn white by age, when the leaf becomes tawny; paler, with hairy veins, beneath. Flower-flakes from the forks of the branches, solitary, from one inch to two inches and a half long, erect, simple, very rough, quadrangular upwards. Spike globose, of fix or eight flowers. Calyx corrugated, bristly, with linear recurved teeth. Corolla not much longer than the tube of the calyx, with five plats in the limb. Fruit tuberculated. Many doubts have arisen respecting this species. What we have here, with all possible precision, defined, is certainly the Linnaean authentic specimen, which we should suspect to be the Lantana Radula of Swartz. Ind. Occ. 1557. Willd. Sp. Pl. v. 3. 317, to judge by the description, not having seen the plant. Nevertheless our's has the calyx and corolla of a Varroonia, and the habitat of the plant is so near V. mirabilis, as figured by Jacquin, that Linnaeus may well be excused for supposing them one and the same. In the Linnaean herbarium are two other specimens, sent by Rollander, and marked likewise V. bullata. It must be to thefe that Swartz alludes, when he says, in his Obs. 88, "there is a specimen of V. globosa in Herb. Linna. under the name of bullata." Whether this be correct or not, there have never been described as bulbata, though, by mistake, so named.

3. V. mirabilis. Salver-flowered Varroonia. Jacq. Amer. 41. t. 33. Willd. n. 3. Ait. n. 2. Swartz Ind. Occ. 465.—Leaves ovate, rough, ferrated. Spikes roundish, unequal. Caly whole-shepia; its tube three the length of the calyx. Native of Hisafpanches, even in hedges near the town of Pecan-Prince. Jacuim. The most elegant of its genus, often twelve feet high. Leaves two inches long, rough on both sides. Flower-flakes lateral and terminal, measuring three or four inches, and bearing each a simple or divided round-headed flower, of numerous white insodorous flowers, very handfome, the size of Maynia of Peru. Segments of the calyx fmall, ovate, ending in long bristles. Drupa red, the size of a pea, full of sweet nutritious pulp. Nut depressed. Such is the plant of Jacquin, and we must suppose Swartz's the fame, in spite of some slight incongruities of description. We have never seen either.

4. V. martius-carra. Marionia Varroonia. Jacq. Amer. 41. t. 32. Willd. n. 4. Ait. n. 3.—Leaves ovate, pinnated. Spikes oblong, dent. Calyx-teeth linear, half the length of
of the tube.—Native of Martinico. Sent to Kew by sir Joseph Banks, in 1795. It is said to flower in the hove about August and September.—*A. flava* as tall as a man; the young branches only roughish with close-prehended hairs. *Leaves* three inches long, sharply serrated; rough above, with minute deflected hairs; soft and downy at the back. *Flower-flax* solitary, a little above each fork of the branch, silky, an inch and a half long, each bearing a deuce *spike*, about an inch long, of many funnel-shaped, probably white, flowers. *Calyx* silky, with broader and shorter teeth than any of the foregoing.

5. *V. globosa*. Globose Varroia. Linn. Sp. Pl. 276. Wildd. n. 5. Jacq. Amer. 41. —"Leaves lanceolate-oblong. Stem forked. Flower-flaxes axillary, elongated, naked. Spikes globose.—Native of the West Indies. An oblong species, of which we can give only the Linnaean specific character, the author of which adds *pellicibus et dichotomatis nudis*; meaning, probably, that whenever a split springs from the fork of the flower, it is unaccompanied by a leaf. Linnaeus further says, that the calyx-teeth are long, linear, and recurved. Whether the specimen above-mentioned from Rolander (see n. 2) has been the same is not known. Sir Joseph Banks has favoured us with what he considers as *V. globosa*, from Von Rohr, which may be the same; the leaves and flower-heads are much blunter, but hardly enough to make a specific distinction.

In this the leaves are scarcely above an inch long, rough and rather hairy, especially beneath, as are also the branches and flower-flax. *Flowers* numerous, in dense, globular, silky, flattened heads, either from the forks of the younger branches, or each opposite to a leaf. *Calyx-teeth* as described by Linnaeus.

6. *V. curassavica*. Long-spiked Varroia. Linn. Sp. Pl. 276. Wildd. n. 6. Jacq. Amer. 42. n. 7. Swartz Obs. 88. (V. alligures farinumosa, folium et capitulis oblongis; Browne Jan. 172?)—Leaves elliptic-oblong, minutely toothed. Spikes oblong. Calyx-teeth triangular, slightly pointed.—Sent by Von Rohr from the West Indies, and given us by the late Mr. Dryander, as the authentic plant of Jacquin, compared double-flus with his specimen. Yet the calyx-teeth have less evident points than he describes, and the flower is rather large. Whatever our friend Mr. Swartz may have had for *V. curassavica*, we can assert that our's is certainly distinct from *marticenfis*. (See his Obs. 88.) Jacquin describes it fifteen feet high, with round rough branches, rusty when old. *Flowers* small, white, without scent, in dense terminal *spikes*, two or three inches long. *Drupa* small, red.


8. *V. alba*. White-fruiting Varroia. Linn. Sp. Pl. 276. Jacq. Amer. 41. Wildd. n. 8 (Mepisus americana, alni vel coryl foliis, fructu magnifico albo; Comm. Hort. v. 1. 155. t. 80.)—Leaves heart-shaped, pointed, flowers cyanose.—Native of South America, about Carthagen and in Curavail. *A tree*, often thirty feet high, with an ample spreading head, and a trunk fix inches in diameter; though in hedges it is scarcely more than a shrub. *Leaves* four or five inches long, serrated, rough; somewhat heart-shaped at the base. *Cymes* large, not uncommonly extending fix inches, of numerous, white, scentless flowers. *Calyx* at first entire, but, as the corolla protrudes, it is pushed aside horizontally, splitting into two valves, the upper withering, the under permanent, and the margin is seen to have five very flight teeth. Limb of the *corolla* bell-shaped. *Drupa* oblong, measuring half an inch, whitish, filigulose, sweet, but inured and glutinous, eaten by the inhabitants of Curavail. *Nat. oblong, fritated, black.

9. *V. monotetra*. Single-flowered Varroia. Jacq. Hort. Schoenbr. v. i. 18. t. 39. Wildd. n. 9.—*Leaves* ovate; entire at the base. *Cymes* lateral. Flowers capitate.—Native of the Caraccas. It flowered in the hove at Schoenbrunn all summer long, and bore fruit. The *flum* is twelve feet high. *Leaves* three inches in length, flattened, ferrated from about the middle only. *Flowers* small, white, in little globular heads, collected into flattened cymes, which spring laterally from the branches, about half way between the leaves. *Calyx-teeth* triangular, scarcely pointed. *Corolla* bell-shaped, abrupt, crenate. *Stigmas* dilated, obtuse. *Drupa* scarlet, the size of a pea. There being but one kernel, it is probably owing to the plant not being in a natural situation, and therefore is wisely omitted by Willdenow in the specific character. For the fame reason, the name may probably prove exceptional.

In studying this genus, we cannot but observe that the species here mentioned are not precisely described, and nor so well defined, as could be wished, nor do we pretend to have placed them all beyond the reach of uncertainty, our materials being, in several instances, defective on the score of authority.

VARRONIAN SATIRE. See Satire.

VARS, in Geography, a town of France, in the department of the Charente; 6 miles N. of Angoulême.

VARS, a town of Imirretta; 10 miles S.E. of Cotatis.

VARTSETCH, a town of Ilfra; 8 miles E. of Pedena.

VARSHNEYA, in Mythology, a name of the Hindoo deity *Krishna*; which fee.

VARSOVIA, in Geography. See Warsaw.

VARU, an island in the Caribbean sea, near the coast of South America, about fifteen miles long, and three broad. N. lat. 10° 12', W. long. 75° 25'.

VARVELS, in Falconry, small rings about a hawk's leg, with the owner's name on them.

VARUNA, in Hindoo Mythology, is the genius or regent of the waters, corresponding with the Neptune of western heathens. As light is thought to be excluded from the deep, Varuna is also deemed the governor of the night, or of darkness; in this character, as well as in that of lord of punishment, coexisting with the Hindoo Pluto, who is named *Yama*; which fee. Still he is one of the twelve funes, called *Aditya*, of which fee under our article *Surya*.

As lord of punishment, the wealth of criminals is directed to be offered to him; or, in other words, thrown into the waters; or it may, instead, be bestowed on a learned priest. The latter, we may suppose, is likely, on most occasions, to outshine the deity. In the Institutes of Men, ch. ix. v. 243. 4. 5., these textes occur. "Let no virtuous prince appropriate the wealth of a criminal in the highest degree; for he who appropriates it through coutoufnets, is contamind with the same guilt. Having thrown such a fine into the waters, let him offer it to Varuna; or let him bellow it on some prief of eminent learning in the scripturn. Varuna is the lord of punishment; he holds a rod even over kings, and a prief who has gone through the whole Veda, is equal to a sovering of the world." In another text, c. ix. v. 365, it is said that "Varuna most especially binds the guilty in fatal cords." Like other Hindoo deities, Varuna has a comfort, or fakut, assigned him. She is called *Varuni*; which fee. He has likewise a terrestrial palace or paradise, situated far in the Weil,
VAS

Well, named Subhasvati; which fee. He has also had a terrestriall incarnation, under the name of Samvarua. 

VARUNI, the confort of the Hindoo Neptune, who is named Varuna; which fee. As well as his confort, he is said to be his daughter; a double relationship not uncommon with the gods both of India and Greece. 

VARUS, or VARUM FLUMEN, the Var, in Ancient Geography, a river, which, in the time of Strabo and Pliny, sepulted the Garaus from Italy. 

VARUSA, a river of Italy, in Gallia Cisalpina, which discharged itself into the Po, near the confluence of this river with the Ticin. 

VARUTHA, a town of Asia, in the Greater Armenia. 

PETOLY, in Geography, a town of Hungary; 10 miles S. of Munckacz. 

VARZEA, a town of Portugal, in the province of Beira; 9 miles S.S.W. of Lamego. 

VARZESKOI, a lake of Ruffia, in the government of Archangel; 60 miles E. of Mezen. 

VARZY, a town of France, in the department of the Nievre; 7 miles S.S.W. of Clamecy. 

VAS, Vessel. See VESSEL, VESICULA, and ANGIOLOGY. 

Hence, in the style of anatomists, the vasa adiopota, preparata, &c. 

VAS CHYLIFERUM, in Anatomy, the thoracic duct. See ABSORBENTS. 

VAS DEFERENS, the excretery tube of the testis. See GENERATION. 

VASA BREVIA, the short arterial and venous ramifications proceeding from the splenic trunks to the great end of the stomach. See ARTERY, and VEIN. 

VASA EFFERENTIA and INEFFERENTIA; the latter are the lymphatic vessels, which enter an absorbing gland; and the former, those which go out of it. See ABSORBENTS. 

The tubes which pass from the upper end of the testis, and unite to form the epididymis, are also called vasa efferentia. See GENERATION. 

VASA LATTA, or VENAE LATTEAS, the absorbers which take up the chyle from the small intestine. See ABSORBENTS, and INTESTINE. 

VASA VASIFORUM, the vessels which belong to the coats of vessels. See HEART. 

VASA CONCORDIAE, or HYDRAULIAE, are two vessels, so constructed, as that one of them, though full of wine, will not run a drop; unless the other, being full of water, do run also. Their structure and apparatus may be seen in Wolfius, Element. Mathet. tom. ii. Hydraul. 

VASA, in Geography, a town of Turkestan, on the Sird; 70 miles W. of Taraz. 

VASA, or Wafit. See WASA. 

VASAGUDA, or VASAGUDA, in Ancient Geography, a town of Africa, in Maurittania Cæsariensis. Potolomy. 

VASANTA, in Hindoo Mythology, is the name of the bofom friend of their Kama, god of love. Among the Maharat and low people he is called Beffant, Beffent, or Buffant. He is a personification of the season of spring; and fongs in his honour are chanted by minstrels of both sexes at vernal and other festivals. See under KAMA for some mention of his ineparable attendant. 

VASARCHELY, in Geography, a town of Hungary, on a small river, which runs into the Thyley; 50 miles N.N.W. of Temeswar. N. lat. 46° 25'. E. long. 29° 35'. 

Also, a town of Hungary; 22 miles E. of Cacchau. 

Also, a town of Transylvania; 40 miles E. of Colofvar. N. lat. 46° 37'. E. long. 25° 5'. 

VASARI, GIOVANNI, in Biography, was born at Arezzo in 1512, and was first inducted in design by a glass-painter, called Il Prete Callo, but afterwards, being taken to Florence by the cardinal Pafferini, studied under M. Angelo and Del Sarto. Another friendly cardinal conveyed him to Rome, the cardinal Ippolito di Mediæci; and under his protection he acquired riches and honours. In Rome he laboured affidiously, attaching himself particularly to M. Angelo, of whom he appears, by several letters preferred by Bottari, to have been very sincerely esteemed. He was employed in several public works at Rome, both as a painter and an architect, particularly in the Vatican, in the Sala della Cancellaria, where he painted, by the direction of the cardinal Farneæ, a series of frescoes, representing the principal actions of Paul III.; and in the church of S. Giovanni Dicollatto, he painted for the principal altar the mar-tyrdom of that saint, one of his most highly esteemed performances. 

He was invited by Cosmo I. to Florence in 1553, and employed by that prince as superintendant of the important works then going on in the Palazzo Vecchio, where he executed, with the help of numerous discipiles, the decoration of the principal apartments. Of his paintings there, pope Clement VII. crowning the emperor Charles V. was the most important, and it was accompanied, in other compartments in the fame hall, by representations of the actions of that monarch. 

There are many other works of Vasari scattered about Italy, as at Bologna, Arezzo, and Rimini, &c.; but for all he was a tame copyist of Michel Angelo's manner, and a very indifferent colourist. He is far more endeared to us by his writings than his pictures. His work, entitled "Lives of the most excellent Painters, Sculptors, and Architects, from the Period of Cimabue till his own Time," is the fountain of knowledge concerning the greater part of them: and though in many points he appears to have been too facile of belief, and to have related histories without sufficient inquiry into their correctness, yet upon the whole the world is indebted to him for an ingenious and useful work; without which, the history of the art would not now have been so distinctly understood, nor the profeffion so justly known and honoured. It was first published at Florence, in two volumes, in 1550, and afterwards republished with considerable additions, and heads engraved in wood of most of the artificers mentioned, in 1568, and has since been re-edited with copious notes by Bottari. Vasari died at Florence in 1576, at the age of 64. 

VASAVA, in Mythology, a name of the Hindoo god Indra; which fee. 

VASBARRA, in Ancient Geography, a town of Africa, in the interior of Mauritania Cæsariensis. Potolomy. 

VASBUHL, in Geography, a town of the duchy of Wurzburg; 4 miles N.E. of Arnlein. 

VASCO, or VASQUEZ DE CASTILLO, in Ancient Geography, a town of Gallia Narbonensis, according to Potolomy and Pliny. 

VASCONEZ, a people of Hispania Citerior, at the foot of the Pyrenees. These people, who in later times passed into Gaul, where they affinied the name of Gascon, lay to the east of the Cantabri; in the country now called Navarre; and they emigrated from the Pyrenees as far as the Iberus towards the south. Their principal towns were: Pompélio, Calaguris, and Graecuris. 

VASCULAR, VASCULARIS, in Anatomy, is applied to any thing consisting of divers vessels, veins, arteries, &c.

We say, the vascular and vesicular texture of the lungs.
All the flesh, in an animal body, is found to be vascular, none of it parenchymous, as the ancients imagined.

Vascular Glands. See GLAND.

Vascular, Vascularis, in Antiquity, was the denomination of a kind of artificers among the ancient Romans; who made silver and gold vases without relieves, or figures embossed on them.

Hence, according to Salamnus, it is, that Cicero, in his sixth oration against Verres, distinguished *vascularius from cultrarius from cultrator, engraver.*

In the art called by the Greeks καλλιτέχνης, which was the art of superadding ornaments of precious stones, or rich metals, to vases of other metals; the vascalarii and eculatii were different; the first being the goldsmiths who made the vase; the second, the sculptors who added the ornaments. But in the art called *τσαλτικής* or the art of cutting bas-reliefs, or flamping figures on metal, the vascalarii were also eculatii, or engravers; that is, they who made the vase, made also the relieves, or figures, with which it was enriched.

VASCULIFEROUS PLANTS, in Agriculture and Gardening, are all such as the seeds of which are contained in vials, divided in the cells. There are several of these in both these departments. See SEED.

VASE, a term of equal import with the Latin vas, whence it is formed; and with the English vessel; which see.

It is applied to the ancient vases dug from under ground, or otherwise found, and preferred in cabinets, &c. as vases of sacrifice, urns, &c.; and to other more modern vials, which are rather of curiosity and thow than use; as those of crystal, porcelain, &c.

In the curious collection of ornamental works, made by Meffrs. Wedgwood and Bentley, after the antique, there are vases of various kinds; some formed of a composition of terra cotta, resembling agate, jasper, porphyry, and other variegated stones, of the vitreous or crystalline kind; others of black porcelain, or artificial basaltes, highly finished, with bas-relief ornaments; others of the painted Etruscan kind; and others again ornamented with encaustic paintings. The art of painting vases in the manner of the Etruscans has been lost for ages; however, these ingenious manufacturers set themselves to revive it; and, having carefully examined the original Etruscan vases, and having perused with attention the writings of the late count Caylus upon Etruscan antiquities, they were convinced that the colours of the figures could not be successfully imitated with enamel; and that their effects must chiefly depend upon the discovery of a new kind of enamel colours, to be made upon other principles, and to have effects essentially different from those that were then in use, and are of the nature of glafs: the Etruscan colours being burnt in, smooth and durable, but without any glassy luster. In consequence of this observation, and by a great variety of experiments, they invented a set of encaustic colours, not only sufficient to imitate the paintings upon the Etruscan vases, but to give the beauty of design the advantages of light and shade in various colours; and to render paintings durable, without the defect of a varnished or glassy surface. These encaustic colours may be applied with great ease and certainty; they change very little in the fire, are not liable to run out of drawing, are perfectly durable, and not glassy, and posses the advantages of enamel, without its essential defects.

Catalogue of Cameos, &c. by Wedgwood and Bentley, 1773.

VASES, in Architecture, are ornaments of sculpture, placed on socles, or pedestals, representing the vases of the ancients; particularly those used in sacrifice, as the praefentulum, hippocam, incense-pots, flower-pots, &c. and occasionally enriched with baso-relieves.

They are commonly placed there to crown or finish façades, or frontispieces. They are frequently also called acorioria; and are usually inflate.

In forming and decorating vases, fancy has great scope. Many excellent inventions of these ornaments are transmitted to us from the ancients. A vase differs from an urn, as it is in general of a more elegant contour, and is lofty; whereas an urn should be low and wide, and always covered.

Vitruvius mentions a kind of *theatrical* vases, made of bracts, or earthen-ware, called *echia, νυξίς,* (see ECHIA and VITRUVIUS); which they disposed in private places, under the steps and seats of the theatres, to aid and incrathe the reflection and renunciation of the actors’ voices, &c. It is said, there are also vases of this kind in the cathedral church of Milan.

VASE is particularly used in architecture to signify the body of the Corinthian and Composite capitals; called also *tambour, or drum; and sometimes the conteneau, or ball.*

VASE is also formed upon vessels called *florula,* for what they otherwise call the *calyx.*

The vase, or rather calyx of a tulip, is the top or head of a tulip; the leaves of which form a kind of vase, or cup.

Goldsmiths, briners, &c. also use vase for the middle of a church-candlestick; which is usually of a roundish figure, bordering somewhat on that of a vase.

VASE River, in Geography, a river of America, which runs into the Mississippi, 55 miles above the mouth of the Ohio.

VASEN. See WISEN.

VASH, a river of Grand Bucharistan, which gives name to the country it waters; and runs into the Gihon near Terned.—Also, a province of Great Bucharistan; which see.

VASHAVAN, a town of Hindoostan; 30 miles S.W. of Dindigul.

VASHGERD, a town of Grand Bucharistan, and principal town of a district watered by the Vafh; 200 miles S.E. of Samarcand. N. lat. 38° 25’. E. long. 67° 50’.

VASHON’S ISLAND, an island near the west coast of America, at the bottom of the Admiralty Inlet, and eastern branch of the gulf of Georgia. N. lat. 47° 16’. E. long. 237° 25’.

VASIL, a town of Russia, in the government of Nizgorod, on the Volga; 60 miles E. of Niznei Novgorod. N. lat. 56° 16’. E. long. 45° 44’.

VASILICA. See BAMLICA.

VASIKLOV, a fort of Russia, in the government of Kiev; 28 miles S.S.W. of Kiev.

VASINA, a town of the island of Corfica; 4 miles N. of Balta.

VASIR. See SIRVENT.

VASISHTHA, in Biography, is the name of a celebrated perfom of Hindoo history and mythology; one of a class called Rishi, meaning a sage. Of these divine persons we have given a list, and some remarks, under the articles RISHI and KRITIKA; the latter being the Pleiades of the Hindoos, who have many very curious tales of their *fledging sweet influences.* Vasi.tha is a character frequently mentioned in the romantic histories of the Hindoos, as being referred to for advice by royal and other persons requiring spiritual or other consolation. He is, indeed, called the preceptor of the inferior gods. A very celebrated commentary on the Veda, the Hindoo scripture, is ascribed to Vasi.tha. It is in prose, with poetry intermingled; and is quoted as high law authority. (See VEDA.)
His wife, named Arundhati, is represented to have been exemplary in regard to holiness and sanctity, and to have been translatel to the skies with her faithful husband: she is still quoted as proverbial for virtue and constancy. Vasistha is a star of the second magnitude, in N. lat. 60°, and Arundhati is a smaller star near it.

In the Agni Purana, a hymn is addressed to Vasistha; affording some clue to the relative antiquity of the poetical romances bearing the common denomination of Purana; which fee.

VASUU, or VASIT, in Geography, a town of the Arabian Irak, on the Tigris. This town was built in the beginning of the eighth century, by Al Haraj, the Arabian general. A mint was established, and in 707, money was coined there by order of the caliph. In 1420 it was plundered by Timur Bec; 96 miles S.E. of Bagdad. N. lat. 32° 18'. E. long. 45° 38'.

VASKINA, a gulf or bay of Ruffia, on the south coast of the island of Kaluguev.

VASKOVNIA, a town of Ruffia, in the government of Piskov; 120 miles S.S.E. of Piskov.

VASLUI, a town of European Turkey, in Moldavia, on the Bria; 32 miles S. of Jaffy. N. lat. 46° 42'. E. long. 27° 35'.

VASLOKI, in Hindoo mythological Legend, is a name of a petty vassal, more commonly called Stha; which see.

The name of Vasloky, however, frequently occurs in the extravagant legends of the East. See BALIYA and KURMA-VAATAA.

VASON, in Geography, a town and cañon of Hungary; 20 miles W.S.W. of Stuhl Weissenburg.

VASPINCE, a town of Perfia, in the province of Ader-beizan, containing about 600 houses; 9 miles from Tabris.

VASQUEZ, a town of the island of Cuba; 66 miles N.W. of Villa del Principe.—Allo, a river of Mexico, which runs into the Spanish Main, N. lat. 11° 30'.

VASSAL, VASSALLUS, in our Ancient Customs, a person who vowed fidelity and homage to a lord, on account of some land, &c, which he held of him in fee.

Du-Cang will have the word to come from vaflus, which anciently signified a servant or domestick of a prince, and sometimes also the comte, or officer, in public trials. Menage, after Cuias, takes vaflal to have been formed of geif, an ancient German word, signifying companion. Cafe-neuvers derives it from the Gaulish geifus, a brave man, from geifi or geifum, or geifum, a kind of javelin used among them. Volusius derives vaflal from vas, vadas, pledge; whence also he will have it to be, that they are sometimes called fideles.

The vaflal was also called piratus, lord's-man, and fee-man; but now the denomination is changed into that of tenant in fee.

Accordingly the vaflal, or feudatory, was only another name for the tenant or holder of the land; though, on account of the prejudices we have juftly conceived against the doctrines that were afterwards grafted on this syllen, we now use the word vaflal opprobriously, as synonymous to slave or bondman. The manner of the grant, on the part of the proprietor or lord, who retained the dominion, or ultimate property of the feud, or fee, was by words of gratuitous and pure donation, dedi et concefi; which are still the operative words in our modern inquisitions, or deeds of feoffment. This was perfected by the ceremony of corporal in-vestment, or open and notorious delivery of possession, in the presence of the other vaflals, which perpetuated among them the era of the new acquisition, at a time when the art of writing was very little known; and, therefore, the evidence of property was reposed in the memory of the neighborhood: who, in case of a disputed title, were afterwards called upon to decide the difference, not only according to external proofs, adduced by the parties litigant, but also by the internal testimony of their own private knowledge.

They sometimes also used the term vaflal for vaflal; whence vaflory.

If a vaflal offended his lord grievously, either in person or in honour, he committed the crime of felony; which carried with it a confiscation of his fee.

VASSAL, a Rear, is he who holds of a lord, who himself is vaflal of another lord.

VASSAL was anciently used for soldier; by reason fees, at first, were given to none but military men.

VASSALAGE, the state of a vaflal; or a servitude and dependency on a superior lord.

Anciently, they distinguished between liege vaflalage, and simple vaflalage.

Lige vaflalage only belonged to the king; as carrying with it an obligation on the side of the vaflal to serve his lord in war, against all persons whatever. See LIEGE.

In all simple vaflalage, the fealty, or liege vaflalage, was still referred to the king.

Some also distinguished active vaflalage, and passive: the first is the right of fealty residing in the lord; the second, the service and duties incumbent on the tenant.

VASSALBOROUGH, in Geography, a town of the county of Maine, on the Kennebeck; 104 miles N.E. of Bolton.

VASSEN, or WASENN, a town of Holland, in the department of Guelderland; 12 miles S. of Hattem.

VASSIETTE, a river of America, which runs into Lake Michigan, N. lat. 44° 38'. W. long. 85° 18'.

VASSY, a town of France, in the department of the Calvados; 8 miles E. of Vire.—Allo, a town of France, and seat of a tribunal, in the department of the Upper Maene. In the year 1562, a bloody persecution against the Protestants began in this town; 9 miles S. of St. Dizier. N. lat. 48° 30'. E. long. 5° 2'.

VASTAN, a town of Curditan, on lake Van. In 1386, it was taken by Timur Bec; 20 miles S.W. of Van.

VASTANFORS, a town of Sweden, in Westland; 32 miles N.N.W. of Stroemhoff.

VASTAUNA, in Ancient Geography, a town of Asia, situated in the S.E. part of the lake Artsia, towards the 33rd degree of latitude.

VASTO, in Laos, a writ that lies against the tenant for life, or years, for making waife.

VASTUS, in Anatomy, the name of two very large muscles belonging to the thigh. The body of the femur is completely enveloped, except at the linea alpera, by a thick muscular mass: this may be distinguished at its origin into three portions, which soon became blended together, so as not to admit of separation. The part which covers the outside of the bone is called vastus externus; that which covers the inside, vastus internus; and the middle, vastus, or cruratus. These have usually been described as three distinct muscles; but some modern anatomists have more properly considered them as one, under the name of triceps femoris: they form the tri-femoro-rotulian of Dumas.

The triceps cruris then is a very thick illferior mass, of a rounded or convex figure, covering the thigh-bone, and extending from the bales of the trochanter to the patella and tibia.

The anterior surface is covered, towards the outside, by the tendon of the gluteus maximus, the tenfor vagus, the arteteria.
fascia lata, and the short portion of the biceps; at the middle, by the iliacus internus, rectus extensor cruris, and the external circumflex veins; on the infiie, by the factorius, the femoral artery, and the fascia lata. The posterior surface covers the body of the femur, with the exception of the linea aspera; it is attached to the anterior, external and internal surfaces of the bone, from the bases of the trochanters to within four fingers breadth of the knee; then it is separated from the femur by a loose and fatty cellular subsidence, and lastly, it covers the synovial membrane of the knee-joint.

The outer margin is fixed to the rough line, which descends from the great trochanter to the linea aspera, together with the gluteus maximus, to which it is closely connected: it is then fixed to the external edge of the linea aspera, in its whole length, and to the upper two-thirds of that line, which descends from the linea aspera to the external condyle of the femur, being connected in the latter situation with the fascia lata. The internal edge is fixed to the corresponding inner edge of the linea aspera, from the trochanter minor downwards; and to the upper two-thirds of the line, defending from it to the external condyle, being connected here with the tendon of the triceps sartorius. Its upper extremity is divided into the three portions already mentioned. The external (vastus externus) and most considerable is fixed to the circumference of the basis of the great trochanter; it descends on the outside of the thigh, increasing in size to the middle of the limb, and then diminishing again. At first it is separated from the middle portion by a thin stratum of cellular subsidence; but they are soon confounded in one mass. The internal portion (vastus internus) is not in general very distinct from the middle. Commencing at the root of the little trochanter, it descends on the inside of the femur, first increasing in size, and then diminishing again. On its outside, it is separated from the middle portion, if at all, by a very slight cellular line, for about an inch or two, after which they are confounded in one mass. The middle and smallest division (cruralis) commences at the basis of the neck of the thigh-bone, by an attachment to the rough line, which reaches from the great to the small trochanter; it descends perpendicularly, increasing in size, separated at first from the lateral portions, but soon inseparably joined with them into one mass, surrounding the body of the femur, and ending in a tendinous extremity, attached to the bases and sides of the patella, and to the tubercles of the tibia (tibiae). The back-mentioned attachment is effected by means of a broad and thick tendon, connected in front to that of the rectus extensor cruris, and expanded laterally into aponeuroses fixed to the tubercles of the tibia. Of these aponeuroses, the outer is closely connected to the fascia lata. The tendon of the triceps is divided above into three broad portions, which ascend on the three divisions of the muscle. A thick and broad aponeurotic sheet commences from the basis of the trochanter major and the linea aspera, and covers the upper half of the vastus externus: a similar but smaller aponeurosis descends from the linea aspera on the vastus internus. The muscular fibres of the vastus externus pass obliquely downwards and forwards from its superior aponeurosis, and from the aponeurotic septum, which separates it from the short head of the biceps to the inferior tendon. Of these fibres, the upper are the longest and most perpendicular; the succeeding ones become more and more oblique, and the lowest approach to the transverse direction, accompanying the tendon to within an inch of its termination.

The flabby fibres of the vastus internus pass with a corre-

fponding obliquity between the two aponeuroses; the inner or anterior being the longest and straightest, the lower shorter, and more transverse. Of the middle portion, the muscular fibres are parallel to the axis of the thigh, arising from the anterior and lateral surfaces of the bone, and terminating in the lower tendon.

A prolongation of the synovial membrane of the knee extends for some distance behind this portion, above the patella, and thus supplies the place of a bursa muscosa. The lateral portions of the inferior tendon adhere very closely to the synovial membrane of the knee.

The triceps femoris frays the knee-joint, either by moving the leg forwards on the thigh, or on the leg. These are very important muscles in progression, when they bring the thigh forwards on the leg of the advanced limb. When we are descending an inclined surface, and the heels slip, they make a great effort, by drawing forwards the thighs, to prevent the body from falling; in this exertion the patella is sometimes fractured. In standing, they preserve the thigh-bones perpendicular over the legs. They extend the leg on the thigh, where the limb left behind in progression is advanced in its turn in front of the foot which has just detached the ground.

VASU, in Hindu Mythology, a name of the regent of the winds, more commonly called Pavana; which see. But the word occurs more frequently in the plural, when "the Vaus" seem to imply the eight winds collectively; the Hindoos having many fables connected with this number of winds. It is not easy to discriminate at all times between the Vaus and the Maruts of the Hindoos. See Marut.

VASUDEVA is the name of the mortal father of their god Krishna: his mother was Devaki. (See KRISHNA.) The name Vasudeva is said to mean giver of wealth. Krishna himself is sometimes called by this name.

VASUGAN, in Geography, a river of Ruffia, which runs into the Oby, N. lat. 59°: E. long. 80° 14'.

VAT, in Commerce, &c. See FAT.

VAT, or Vat, in Mineralogy, denotes a square hollow place on the back of a calcining furnace, in which they lay the next serving of tin-ore to dry, before it is let down into the furnace, into which it passes through a plug-hole in the bottom of this vat, or dry.

Vatable, or GASTEBEF, Francis, in Biography, was born at Gamache, a village in Picardy, and having first distinguished himself in Greek literature, and by a translation into Latin of Aristotle's "Parva Naturalia," devoted himself to the study of the Hebrew language, in which he excelled, and which he reformed in France. He was appointed Regius professor of Hebrew at Paris by Francis I., in 1531, and the lectures which he made on the Old Testament were delivered to large audiences. His brief and clear explanations of the literal meaning of the texts were preferred.
preferred by some of his hearers, collected by Robert Stephens, and added to his publication in 1545, of Leo Judae's Latin version of the Bible. But as they contained some free passages, they were condemned by the doctors of the theological faculty in Paris, who, imperfectly acquainted with Hebrew, reposed their confidence in the Vulgate. However, the university of Salamanca reprinted the text and notes in Spain, R. Stephens defended them against the Paris theologians, and they have since been approved by men of learning. He not only encouraged Clement Marot to translate the Psalms into French verse, but affiliated him in the undertaking. Vatable, though suspected of heresy, was an orthodox Catholic, and opposed the discipline and opinions of the Calvinists. He died in 1547, poffeated of the abbacy of Bellozane, Dupin.

VATAN, in Geography, a town of France, in the department of the Indre; 11 miles N.W. of Issoudun. N. lat. 47° 52'. E. long. 1° 54'.

VATERIA, in Botany, was so named by Linneus, in honour of Abraham Vater, professor of Medicine at Wittemberg, and author of Catalogus Horti Wittembergensis, (a mere catalogue,) as well as of some botanical differentiations, on the Balsam of Mecca, on Hippomann, &c. This gentleman was born in 1664, and died in 1751. He succeeded his father in the profession. He died in 1754, aged eighty-one, and was also a naturalist. — Linn. Gen. 269. Schreb. 359. Mart. Mill. Dict. v. 4. Juff. 258. Lamarck Ill. t. 475. — Clafs and order, Polyandria Monegina. Nat. Ord. akin to Gutifera, Juff.


Obf. Retzius and Vahl have removed this plant to Eleocarpus, see that article; but without giving any sufficient reason. On the contrary, they describe the petals as entire; nor have they thrown any light upon the fruit, which, as described in the Hortus Malabaricus, cannot accord with Eleocarpus. The large figure, on the right hand, in that book, cannot be reconciled with the ref}, unless it be a seed vegetating. Jussieu seems staggered as to the character of this fruit, by finding the rudiments of three seeds in the germen. But this may very well be, and yet only one may ever come to perfection. The name learned author remarks, that Linneus, in his Systema, attributes three seeds to Vateria. This is true; but we believe it a typographical error, originating in the tenth edition of Systema Naturae, especially as the synoptical table, at the head of the clafs, renaments with the character of a single seed. This contradiction, whichever of the two characters be correct, is heedfully perpetuated through every following edition. On the whole, there appears more reason to retain than to abolish the genus in question.

1. V. indica. Copal Vateria. Linn. Sp. Pl. 734. (Eleocarpus copalifforus; Retz. Obs. Syst. 4. 27. Vahl Syst. v. 3. 67. Willd. n. 5. Penn. Rheede Hort. Malabar. v. 4. 33. t. 15.) — Native of Malabar and Ceylon. A tall and handsome tree, generally sixty feet high, with wide extended branches, and a thick bark, when wounded discharges a clear, pellucid, fragrant resin, acrid and bitter to the taste, at length becoming yellow and brittle like glass. This, according to Koenig, is one kind of Copal; see that article. Perfumes experienced in the use of this gum, so useful for varnishing anatomical preparations, know that there are, as Koenig says, several different things imported under the same name, which are not all equally soluble, even in oil of lavender. The leaves of this tree are alternate, hard, a plan long, elliptical, acute, coriaceous, entire, smooth. Flowers in large terminal, downy panicles, white with yellow filament; their scent sweet, like a lily. Fruit the size of a walnut in its green coat, swelling and blunt at the extremity, dark purple; its kernel white, bitterish and rather astringent, inclosed in a reddish skin, like that of a filbert. This description, taken from the Hortus Malabaricus, is precise; and as nothing is said of any hard shell, we do not see how the fruit can agree with that of Eleocarpus. The above-mentioned kernel, triturated with hot water, is reckoned strengthening to the stomach, and is given to stop vomiting or nausea.

Having formerly examined at sir Joseph Bank's a speci- men of Vateria, in order to distinguish this genus from VATICA, (see that article,) we have corrected the generic characters from observations then made, particularly respecting the authors, of which Retzius and Vahl have also given a faithful account. Linneus had no specimen, but described the genus from one in Hermann's herbarium, now at sir Joseph Bank's. Vahl is surely miftaken in saying the corolla and fruit agree with Eleocarpus!

VATES, in Mythology, the name of a clafs of Druids. VATHI, in Geography, a town on the north coast of the island of Samos, in a bay called the Gulf of Vathi. N. lat. 37° 49'. E. long. 26° 54'.

VATHIA, or BERRATHI, anciently Tyrus, a town of Europe, in the Morea; 16 miles N.E. of Napoli in Romaneia.

VATI, a town of the island of Siphonito. N. lat. 36° 57'. E. long. 24° 40'.

VATICA, in Botany, an unexplained name of Linneus, apparently derived from the same source as vestica, a prophesying. Hence the writer of the present article ventured the genus from one in Germania's herbarium, now at sir Joseph Bank's. We are sure it must have been brought. This conjecture appears in the form of a general opinion in Dr. Theiss, strengthened by a reference to Boehmer's Lexicon, p. 228, a book not within our reach. Now, with regard to this plant, whether it be from China, the specimens being imported India, just like many others, known to have been received from Java by Linneus. In fact, these specimens are of like Vatica (see that article) in appearance and character, that if it were possible to suppose the authors could vary so remarkably, we should suspect these plants might be only sexual differences of one species. Having started this difficulty without having the means of overcoming it, we proceed to describe VATICA.—Linn. Mant. 2. 157. Schreb. Gen. 318. 841. Willd. Sp. Pl. v. 2. 847. Mart. Mill. Dict. v. 4. Sin. Plant. l. 36. Juss. 259. Lamarck Ill. v. 397. — Clafs and order, Diocandria Monegina. Nat. Ord. akin to Gutifera, Juss.

Gen. Ch. Cal. Perianth inferior, of one leaf, in five deep, erect, ovato-lanceolate, acute segments. Cor. Petals five, feffile, obovate, entire, three the length of the calyx, folded over each other, in some flowers to the left, in others to the right; their inner surface smooth; outer, in the expanded half, hoary. Stam. Filaments none; anthers fifteen, feffile, three on the base of each petal, small, ovate, fras citizen.
VAT

four obtuse cells, the two outer cells terminated by a small, intermediate, upright spine, the two inner but half as long, without any spine. *Pfl. German superior, conical, with five angles, obtuse, hoary; fylle cylindrical, with five angles, twisted; stigma bluish, obscurely three-lobed. *Puric. unknown, but the germen has three cells, with the rudiment of a foliary seed in each.


Wild. n. 1. Sm. Plant. t. 36.—Native of China, according to Linneaus, but his authority, as we have faid, does not appear. This seems to be a tree, very near *Vateria indica, from which it chiefly differs in the number and form of the flaments. As to the fruit, Jullien's having found three cells and as many seeds, in the germen of *Vateria, renders the supposed difference in the ripe fruit very doleful. The leaves, inflance, &c. Willd. flange, &c. are clothed with the fame fine, short, clofe, hoary pubefcence, in both. It is much to be wished that some East Indian botanift would clear up these doubts respecting two very fine, and hitherto little-known plants. We must add, that if this be *Vateria, nothing can be more different in its peppers from *Elaocarpus; for instead of the thin texture, and curiously laminated Fragment, appropriate to the latter, their thick undivided substance, and partial hairiness at the back, prove that these genera ought never to be confounded together.

Vatica, in Geography, a sea-port town of European Turkey, in the Morea, situated in a large bay, to which it gives name; 44 miles S.E. of Miftra.

VATICAN, VATICANUS, is properly the name of one of the seven hills on which Rome stands; on the foot of this is the famous church of St. Peter, hence called the Vatican; and a magnificent palace of the pope, which has the fame denomination. Hence arife divers figurative expressions; as the thunderbolt of the Vatican, &c. the pope's anathema, &c.

The word, according to Jeffieu's Dictionary, is derived from vaticinium, prophecy; by reafon of the oracles and predictions which were used to be delivered there by the inspiration of an ancient deity, called Vaticauns; who was supposed to unbend the organs of speech in new-born children; and whom others will have to be no other than Jupiter, confidered in that capacity.

Vatican, The Library of the, is one of the most celebrated in the world; it is particularly remarkable for its manuscripts. It was firft erected, according to Petavius (Rat. Temp. lib. ix. cap. 9.) by pope Nicholas V., who succeeded to the papal chair in 1447. It was re-established, after the books had been deftroyed, under the pontificate of Calixtus III.; by Sixtus IV.; and after having been almoft entirely deftroyed by the army of Charles V. it was not only refored to its former flate by Sixtus V., but greatly enriched with books and manuscripts. It was finally fixed in the Vatican, under the pontificate of Martin V.

Towards the beginning of the 17th century, it was greatly augmented by the addition of that of the elector palatine, which is open to all the world three or four times a week. In it are fiven a Virgil, Terence, &c. above a thousand years old; as also the manucript on which the edition of the Septuagint was made; and abundance of rabbinical manuscripts.

Vatican Manuscript, is one of the most celebrated manucripts of the Greek version of the Bible now extant in the world. It was published at Rome by cardinal Carafa, at the command of Sixtus Quintus, in 1587; and in the preface, it is laid to have been written ante millenium ducen-

tefumnum annum, i.e. before 387; but Blanchini supposes it a few years later. A Latin edition from this manuscript, with notes, was printed at Rome in 1588, by Flam. Nobilius; and an edition, with the Greek and Latin, with the division of the verses according to the Vulgate, and Nobilius's Latin notes, and the Greek exegia of Carafa, by J. Morinus, at Paris, in 1628. This manuscript is written in large or text letters, and has no distinguishing chapters, verses, words, nor any marks of accents. It is mutilated both at the beginning and end; and wants the firft forty-fix chapters of Genesis, thirty-two Psalms, &c. from the 105th to the 137th, and the latter part of the Epitile to the Hebrews, from chap. ix. ver. 14, with the other Epitiles of Paul to Timothy, Titus, and Philemon, and the whole book of Revelation. It appears also, that the whole manuscript has been repaired, with fresh ink laid over the letters which were disappearing through age. In the edition of Carafa, the mutilated passages have been suppled from other copies.

It has been averted, by two eye-witneffes, that this manucript has undergone fome alterations by a later hand. See Le Long's Biblioth. Sacra, cap. 3. fect. 4. and Wetstein's Prolegomena. Nov. Teft. p. 24.

It is difficult to cftimate the comparative value of this and the Alexandrian manuscript, in which thirty Psalms, a few chapters, and a few verses, are now loft, as well as parts of verses in different places; and in which there have been fome rufures and interjections, as Grabe allows. If, as Grabe fates it, that manuscript be the moft refpeetable, which comes the nearest to the Hexaplar copy, the Alexandrian manuscript feems to claim that merit in preference to its rival. But if it be thought a matter of superior honour to come nearer the old Greek version, unaltered by Origen, that merit feems to belong to the Vatican. For further particulars, fee the Prolegomena of Walton, Grafe, Wetstein, Mills, and Le Long, 4to supra.

VATICANA PHILIPPI, the name of an old form of medicine, intended as a purge. The recipe is in the old London Pharmacopoeia; but the late ones have discarded it.

VATICANO, CAPE, in Geography, a cape on the W. coast of Calabria Ultra. N. lat. 38° 40'. E. long. 16° 52'.

VATICINATION, VATICATIO, the act of prophesying, or divining. See DIVINATION, and PROPHESY.

VATIMONT, in Geography, a town of France, in the department of the Mofelle; 8 miles W.N.W. of Morhange.

VATISIA, or FATISIA, a town of Afiatic Turkey, in the government of Sivas; 90 miles N. of Sivas.

VATO, a town on the W. coast of the ifland of Negro-pont. N. lat. 38° 20'. E. long. 24° 2'.

VATRANDEL, a town of Hindooftan, in the Carnatic; 4 miles N. of Vellore.

VATTIER, Peter, in Biography, an Arabic Schollar, was born at Lizeieux, in Normandy, and having been educated for the medical profession, was appointed physician and counfellor at Galton, duke of Orleans, brother of Lewis XIII. To an extensive acquaintance with the Arabic, Persian, and Turkish, both Greek and Latin, he added a peculiar attachment to Arabic writers, and translated many of their works. Among these are “The Hahometan History, or the Forty-nine Caliphs of Elmacin”; “The History of the Great Tamerlane, from the Arabic of Acheam, Son of Guerafo;” “The Egypt of Murtaf;” “The flegy of Tograi, with some Sentences from the Arabic Poets;” &c. He also wrote a work, entitled “ Nouvelles Perfees la Nature des Pfaffions,” 1659, 4to.

The time of his death is not known. Moreri.

VAVANGA, in Botany. See VANGUERIA.

VAVAO,
VAVAO, or Vavou, in Geography, one of the Friendly Islands, in the South Pacific ocean, seen by Peroufe in 1787, who says, "this island, which Cook never visited, is almost equal in size to Tongataboo, and has the advantage of being never in want of water, with a good harbour." It had been before discovered by the Spanish pilot Maurelle, and with a number of islands almost as considerable as those already explored by Capt. Cook, who called the islands of Majorca. S. lat. 18° 34' of the western point. See Tonga.

VAVASOR, VAVASOR, Valvasor, or Valvasure, in our Ancient Coursienis, a diminutive of valvasor, or valvour; signifying a valfa of a valfali, or one who held a fee of another valfali.

Yet Camden, and others, hold vavasor to be a dignity, next below that of a baron; he adds, that the word is formed of vas fortis ad vladusunem, a vessel chosen for safety and health. Others derive it à valva, quibus obligatus sit ad fines ad valvam domini, vel indignus sit cæi intrare; as being a person obliged to wait at his lord's door, or as un worthy to enter thereat; but this etymology is ridiculous enough.

Du-Cange distinguishes two sorts of vassals under this denomination: the great, called valvasores, who held of a king; such were counts and barons: and the lesser, called valvasorini, who held of the former.

The vassals are mentioned by our ancient lawyers as viri magna dignitatis; and sir Edward Coke speaks highly of them. But they are now quite out of use; and our legal antiquarians are not agreed upon even their original or ancient office.

VAVASORY, VAVASORIA, the quality of the land, or fee held by a vavasor.

"Quod dictitur de baronia non est observandum in vavasa toria, vel aliis minoribus feudis quam baronia, quia caput non habent ficut baronia." Bract. lib. ii. cap. 39.

There are base vavasories, and frank or noble vavasories; according as it has pleased the lord to make his vavasor. Base vavasories are those for which the lord of the fee owes fummage, light-horse, rents, or other services. Free vavasories are such as are exempt from these services.

VAVASSEUR, FRANCIS, in Biography, was born in 1605, at Paray, in the diocese of Autun; and entering into the society of the Jesuits in 1621, and acting as regent in the schools for some years, he was called to Paris to occupy the chair of positive theology, the duties of which he discharged honourably for thirty-six years; and he died in this city in 1681, aged seventy-six years. He has been reckoned one of the most elegant and correct Latin writers, and wrote several theological pieces, some against Janensium, and one of a singular subject, "On the personal Beauty of Jesus Christ," and also poems chiefly on sacred subjects. The work which has chiefly distinguished him is a treatise "De Ludicia Diuicione," or on the burlesque style, dedicated to Balzac. He also wrote a treatise "On the Epigram," and "Remarks on the Poetics of Father Rapin." Morei.

VAUBAN, SEBASTIAN LE PRESTRE, Seigneur de, marshal of France, and an eminent engineer, was born in 1633, and began to hear arms at the age of seventeen under the prince of Conté, general of the Spanish army. Being taken prisoner by a French party, he was engaged by cardinal Mazarin on the royal side, and employed in 1653 at the second siege of St. Menehould, by which it was recovered to France. He also acted as engineer in the five following years at several other sieges. After the peace of the Pyrenees, he was employed in demolishing some places and fortifying others; and he also executed a variety of ideas, by the maturity and development of which he contributed in a high degree to the improvement of the science of fortification. On the renewal of the war in 1669, he conducted several sieges, at which Louis XIV. attended in person, and he was commissioned to fortify several places, and in 1668 nominated governor of the citadel of Lille, which he had constructed. After the peace of Aix-la-Chapelle, he visited Piedmont, and gave designs to the duke of Savoy for some important fortresses. In the war of 1672 he again distinguished himself, particularly at the siege of Maeltricht, in which he introduced his famous method of attack by parallels and places of arms; and also on other occasions, when an opportunity offered for the display of his inventive genius. In carrying his schemes into execution he was anxious for saving life, and therefore preferred a slow and regular advance in sieges. The peace of Nimoguen afforded him leisure for fortifying towns; and of these, his master-piece was the port of Dunkirk. On the commencement of war, he again resumed his active services, and had the honour of taking Luxembourg, which was regarded as impregnable. Upon the whole, he fortified one hundred old places, constructed thirty-three new fortresses, and had the principal direction of fifty-three sieges. In recompence of his various exertions, he was advanced to several posts of honour, and in 1703 appointed marshal of France. At Dunkirk, whether he was sent in a state of great alarm, he died of a fluxion in his lungs, in March 1707, at the age of seventy-four years.

The character of Vauban, as a man and a citizen, was no less estimable than his superior talents and achievements in his professional capacity. Loyal and faithful to his sovereign, he fludied to serve more than to please; and he manifested on all occasions an inviolable attachment to truth. As a liberal and zealous patriot, he made such observations, and collected such facts in his various travels, as contributed most effectually to the improvement and prosperity of his country. These were comprised in twelve large MS. volumes, which he modestly denominated "Mes Observations," and Fontenelle observes of him in relation to these, that if all his projects could be executed, his "idleness" would be more useful than his labours. In 1699, he was nominated an honorary member of the Academy of Sciences. The following works were either written by himself, or in consequence of ideas which he suggested: viz. "Manière de Fortifier, par M. de Vauban, mije en ordre par le Chevalier de Cambrai," Amst. 1689 and 1692, printed at Paris under the title of "L'Ingenieur Francois," with notes by Albert, professor of mathematics; and afterwards with notes by the Abbé du Fay; "Nouveau Traité de l'Attaque et de la Défense des Places, suivant le Système de M. de Vauban, par M. Desprez de Saint-Sevin," Paris 1736; "Effais sur la Fortification, par M. de Vauban," Paris 1740; "Projet d'un Dime Royale," Rouen, 1707, often reprinted. This last work is attributed by Voltaire to Bois-Guillebert, author of a "Traité Politique" in the name of Vauban, Fontenelle Elodge. Morei.

VAUBECOURT, in Geography, a town of France, in the department of the Meuse; 6 miles N. of Bar-le-Duc.

VAUCHERIA, in Botany, was so named by M. Decandolle, in his Flore Française, in honour of the discoverer of the genus, the Rev. M. Vaucher of Geneva, author of an excellent work in quartos, entitled "Histoire des Coniferes d'Europe," where this genus is established by the name of Pinus; the latter appellation has very properly given way to the above, previously chosen by M. Decandolle.—Smith, Eng. Fl. Bot. v. 25. 1765. "Decand. Rapport fur les Conif.
adjoining to the anther, ovate, single-feeded, in pairs or
solitary.
(Ætoperferna effulsa; Vauch. Conf. 31. t. 2. f. 7. Conferva
veheata; Dillw. Conf. t. 74, without the anther. Ceramium
caepitulum; Roth Catal. v. 3. 120.)—Floating. Capsules
in pairs and solitary, effulsa on each side of the anther.
Found floating on the surface of pools, in large green patches,
about February; and consisting of capillary, branched,
smooth, rather cleft, tubular filaments, filled with a green
pulp fulvous, which separates in oblong portions, giving
the filament a jointed appearance. Capules lateral, seftile,
pellucid, commonly in pairs, each containing one large green
seed, and having next to them an awl-shaped body, affected
by Vaucher to be the anther. Yet sometimes this body
seems to shoot out into a branch. Vehicles are often found
on the branches, perhaps of the nature of galls, inhabited
by the aquatic animalcule called by Muller Cyclops Lulula,
in considerable numbers, with one dark-coloured animal
besides.
t. 1766. (Ætoperferna gerninata; Vauch. Conf. 29. t. 2.
f. 5.)—Floating. Capsules in pairs and solitary, on opposite
partial filaments, growing out of one common filak with the
anther. — Sent by Mr. W. Borer, along with the preceding,
from Suffey. The habit is the fame in both, but the fruica-
tion, furnished with partial filaments, and with a common
filak for both organs, appears to afford a good specific cha-
teristic. Some botanists nevertheless, and among them, if
we mistake not, Mr. Dillwyn, consider these two plants as more
varieties of each other.
3. V. velutina. Velvet Vaucheria. (Conferva velutina;
Linum. Sp. Pl. 1698. B. tenerissa viridis, velutum referens;
Dill. in Rauy Syn. 56. Mucf. t. 7. f. 14. B. terriratis
viridis herbaceae et mollissima, filamentos ramitos et non ra-
mois; Mich. Gen. 211. t. 89, f. 5.)—Erech, tufted. Fil-
aments beaded, somewhat rigid. Capsules seftile. — This
covers the earth, in moist shaded places, with a most beau-
tiful fine green velvet carpet, frantant like several of the
Jungermannia, even for a long time after it is dried. It ap-
pears to be perennial, occurring in summer as well as winter,
but has been thought more common than it really is, because
Dillenius and others have confounded with this plant a much
more general one, Conferva marifla, Engl. Bot. t. 1554,
which is prostrate, resembling fatin rather than velvet, and
has no sweet scent. M. Vaucher is our authority for re-
moving this species hither. Micheli has but imperfectly
figured the capules, and in fhuch a manner that they may
belong either to those Conferva which make Roth's genus of
Ceramium, or to Vaucheria. Of the anther we know
nothing.
We have here limited ourselves to the British species,
which may possibly prove but a small part of the genus,
when the subject has been sufficiently examined.
VAUCLA.IN, L. e, in Geography, a town of the island
of Martinico, situated in a bay on the N.E. coast. N. lat.
14° 30'. W. long. 60° 46'.
VAUCUCL. A town of France, in the department of
the Doubs; 8 miles S.W. of St. Hypolite.
VAUCLUSE, a town of France, in the department of
Orange, on the left hand of the Rhone, in N. lat. 44°,
one of the twelve departments of the S.E. region of France,
bounded on the N. by the departments of the Drôme and
Ardèche, on the E. by the department of the Lower Alps,
and the S. by the department of the Mountains of the
Rhône, and on the W. by that of the Gard. It is in the
appellation from the fountain of Vauche, (see Fontaine de
Vauches,) which is the source of the river Sorgues, and made
memorable by the near residence of Petrarch and Laura.
Its territorial extent is 3700 kilometres, or 186 square
leagues, and its population consists of 190,180 inhabitants.
It is divided into 4 circles or districts, 22 cantons, and
150 communes. The circles are, Orange, including 54,293;
Avignon, 47,351; carpentras, 39,714; and Apt, 48,822 in-
habitants. According to Hallenfraz, its length in French
leagues is 15, and its breadth 10: its circles are 4, its can-
tons 52, and its population consists of 200,500 persons.
Its capital is Avignon. Its contributions, in the eleventh
year of the French era, amounted to 1,157,701 francs;
and its charges, administrative, juridical, and for public in-
frtruction, were 227,109 francs, 14 cents. This department
consists of plains, marshes, gentle eminences, and hills.
Mont-Ventoux is upwards of 6000 feet above the level of
the sea. The soil is various, and indifferently cultivated.
The products are grain, silk, flax, and tobacco. In this de-
partment coal is exported in bundles with sulphur, and few metallic
fulbances, potter's-earth, mineral springs, &c.
VAUCOULEURS, a town of France, and principal
place of a district, in the department of the Meule; 8 miles
N.E. of Gondrecourt. N. lat. 48° 36'. E. long. 5° 44'.
VAUD, PAES DE, a country of Switzerland, of which
travellers and historians speak with rapture, particularly
of that part which borders on the lake of Geneva. It is almost
wholly a gradual ascent from the edge of the lake, richly
laid out in vineyards, corn-fields, and luxuriant meadows,
and chequered with continued hamlets, villages, and towns:
the shores are generally of the clearest gravel, and the water of
the finest transparency. This country is one of the two
great divisions into which the canton of Berne is divided;
the other being the German district. The Pays de Vaud, after
the decline of the Roman empire, made a part of the king-
dom of Burgundy, from which it fell to the empire of Ger-
many, under which the dukes of Zaringen held it as a fief,
and at the extinction of that family, it became annexed to
the cantons of the counts of Savoy. It was conquered from
the count of Savoy by Berne in 1536, and in
this year the reformation was introduced. From that period
the whole Pays de Vaud, excepting the common baillages
of Grenfon, Orbe, and a small portion of it which was ceded
to Frinburg, has been subject to Berne, and forms a part
of that canton. The German district was gained by conquest
from the cantons of the empire. In each of these divisions
justice is administered and taxes regulated by peculiar laws
and customs. Each division has its treasurer and chamber
of appeal resident in the capital; the chamber of appeal
belonging to the Pays de Vaud judges in the laft resort,
but the inhabitants of the German district may appeal to the
sovereign council. During the French revolution, the Pays
de Vaud was separat from the canton of Berne, and formed
into an independent republic under the protection of France,
in January 1798. In the new division of Switzerland, it
forms the canton or department of Leman, of which Lau-
flaine is the capital. The Pays de Vaud is estimated to be
about 60 miles long, and as many broad; bounded on the
N. by the county of Neuchâtel, on the E. by the canton
of Frinburg, on the S. by the lake of Geneva and the river
Rhône, and on the W. by France. It includes the towns
and bailiwicks of Lauffanne, Yverdon, Moudon, Avence, Ve-
vay, Morges, and several others.
VAUDE-
VAUDEMONT, a town of France, in the department of the Meurthe; 4 miles S. of Vezelise.

VAUDEVILLE, a song sung in the streets by ballad-fingers, the subject of which is generally jocose or satirical. The origin of this little kind of poem is traced up to the time of Charlemagne. But according to the more general opinion, it was invented by a certain man of the name of Baffelin, Foulon de Vere in Normandy; and in order to dance, as people used to assemble in the Val de Vire, they were called Vaux de Vire, and afterwards, by corruption, Vaudrevilles.

The air of these Vaudrevilles is generally very unmusical.

But as people merely listen to the words, the tune only helps to enforce the voice and render the words more audible. But, as music, there is in general neither tune, melody, nor measure in their tunes. The Vaudiville, with respect to the words, belongs exclusively to the French, and they are sometimes very piquant and pious. Roufseau.

VAUDIER, in Geography, a town of France, in the department of the Stura, late in the province of Coni; 5 miles S.E. of Demont.

VAUDOIS, VALENSES, or WALDENFES, in Ecclesiastical History, a name given to a sect of reformers, who made their first appearance about the year 1160.

Of all the facts that arose in this century, none was more distinguished by the reputation it acquired, by the multitude of its votaries, and the solemnity with which its bitterest enemies bore to the profanity and innocence of its members, than that of the Waldenses, so called, fays Mohheim, from their parent and founder Peter Waldus, or Valdus. They were also called Leonitis, from Leonis, the ancient name of Lyons, where their feet took its rise. The more eminent persons of that sect manifested their progress towards perfection by the simplicity and meanness of their external appearance; hence, among other things, they wore wooden shoes, which, in the French language, are termed fabots, and had imprinted upon these shoes the sign of the crofs, to distinguish themselves from other Christians; and on these accounts they acquired the denomination of Sabbatati and Infubbatati.

The origin of this famous sect, according to Mohheim, was as follows: Peter, an opulent merchant of Lyons, unfamed Valdus, or Valetius, from Vaux, or Waldum, a town in the marquisate of Lyons, being extremely zealous for the advancement of true piety and Christian knowledge, employed a certain priest, called Stephanus de Evita, about the year 1160, in translating from Latin into French the four Gospels, with other books of Holy Scripture, and the most remarkable sentences of the ancient doctors, which were so highly esteemed in this century. But no sooner had he perused these sacred books with a proper degree of attention, than he perceived that the religion, which was now taught in the Roman church, differed totally from that which was originally inculcated by Christ and his apostles. Struck with this glaring contradiction between the doctrines of the pontiffs, and the truths of the Gospel, and animed with zeal, he abandoned his mercantile vocation, distributed his riches among the poor (whence the Waldenses were called poor men of Lyons), and forming an association with other pious men, who had adopted his sentiments and his turn of devotion, he began, in the year 1170, to assume the quality of a public teacher, and to instruct the multitude in the doctrines and precepts of Christianity.

Buzza, and other writers of note, who are followed by Dr. Maclean, the learned translator of Mohheim's History, give different accounts of the origin of the Waldenses; alleging, that it seems evident from the best records, that Valdus derived his name from the true Valdenses of Piedmont, whose doctrine he adopted, and who were known by the names of Vaudois and Waldensian before his immediate followers existed. If the Waldenses or Waldensian had derived their name from an eminent teacher, it would probably have been from Valdo, who was remarkable for the purity of his doctrine in the eleventh century, and was the contemporary and chief counsellor of Ranulphius. But the truth is, that they derive their name from their valleys in Piedmont, which in their language were called vaux, and hence Vaudois, their true name; hence also Peter, or, as others call him, John of Lyons, was called in Latin Valdus, because he had adopted their doctrine; and hence the term Waldenses or Waldenfes, used, by those who write in English or Latin, in the place of Vaudois. The bloody inquisitor, Remerus Sacco, who exercised such a furious zeal for the destruction of the Waldenses, lived but eighty years after Valdus of Lyons, and must, therefore, be supposed to know whether or not he was the real founder of the Waldenses or Leonits; and yet it is remarkable, that he speaks of these Leonits as a sect that had flourished above five hundred years; and mentions authors of note to make their antiquity ascend to the apostolic age. See the account given of Sacco's book by the Jesuit Gritter, in the Bibliotheca Patrum. See also Leger's Histoire Gen. des Eglises Vaudois, cap. 25, 26, 27.

But to return to the history of Peter Valdus. Soon after Peter had assumed the exercise of his ministry, the archbishop of Lyons, and the other rulers of the church in that province, vigorously opposed him. However, their opposition was unsuccessful; for the purity and simplicity of that religion which these good men taught, the spotless innocence that shone forth in their lives and actions, and the noble contempt of riches and honours, which was conspicuous in the whole of their conduct and conversation, appeared so engaging to all such as had any sense of true piety, that the number of their followers daily increased. They accordingly formed religious assemblies in France, and afterwards in Lombardy, from whence they propagated their sect throughout the other provinces of Europe with incredible rapidity, and with such invincible fortitude, that neither fire, nor sword, nor the most cruel inventions of merceless persecution, could damp their zeal, or entirely ruin their cause.

The attempts of Peter Waldus, and his followers, were neither employed nor designed to introduce new doctrines into the church, nor to propose new articles of faith to Christians. All they aimed at was, to reduce the form of ecclesiastical government, and the manners both of the clergy and people, to that amiable simplicity, and primitive sanctity, that characterized the apostolic ages, and which appear so strongly recommended in the precepts and injunctions of the divine Author of our holy religion. In consequence of this design, they complained that the Roman church had degenerated, under Conftantius the Great, from its primitive purity and sanctity. They denied the supremacy of the Roman pontiff; and maintained, that the rulers and ministers of the church were obliged, by their vocation, to imitate the poverty of the apostles, and to procure for themselves a subsistence by the work of their hands. They conferred every Christian as, in a certain measure, qualified and authorized to instruct, exhort, and confirm the brethren in their Christian courts, and demanded the renunciation of the ancient pontifical dignities of the church, i.e. the exaction of tithes and offerings, which the new-invented doctrine of indulgences had almost totally abolished. They, at the same time, affirmed, that every pious Christian was qualified and entitled to receive the sacrament, the kind or degree of satisfaction or
expiation that their transgressions required; the confession made to priests was by no means necessary, since the humble offender might acknowledge his sins, and tell his repentance to any true believer, and might expect from such the counsel and admonition which his case demanded. They maintained, that the power of delivering sinners from the guilt and punishment of their offences belonged to God alone; and that indulgences, of consequence, were the criminal inventions of forbid avarice. They looked upon the prayers and other ceremonies that were intitulated in behalf of the dead, as vain, useless, and absurd, and denied the existence of departed souls in an intermediate state of purification; affirming, that they were immediately upon their separation from the body, received into heaven, or thrust down to hell. These, and other tenets of a like nature, composed the system of doctrine propagated by the Waldenses. It is also said, that several of the Waldenses denied the obligation of infant-baptism, and that others rejected water-baptism entirely; but Wall has laboured to prove, that infant-baptism was generally practised among them. Hift. of Infant-Baptism, p. 387, &c.

Their rules of practice were extremely austere; for they adopted, as the model of their moral discipline, the sermon of Christ in the mount, which they interpreted and explained in the most rigorous and literal manner, and, consequently, preached against, and condemned in their society all wars, and fruits of law, and all attempts towards the acquisition of wealth, the inflating of capital punishments, self-defence against unjust violence, and oaths of all kinds.

The government of the church was committed by the Waldenses to bishops, called also majorales or elders, presbyters, and deacons; for they acknowledged that these three ecclesiastical orders were instituted by Christ himself. But they thought it absolutely necessary that these orders should resemble the apostles of Christ, and be, like them, unlearned, poor, and furnished with some laborious trade or vocation, in order to gain by constant industry their daily subsistence; and indeed most of the Waldenses gained their livelihood by weaving; whence in some places the whole feft was called the feit of the weavers. The laity were divided into two classes, vis. the perfect and the imperfect Christians: the former divested themselves of all worldly possessions, manifested in the wretchedness of their apparel, their extreme poverty, and emaciated their bodies by frequent fasting; the latter were less austere, and approached nearer to the method of living generally received, though they abhomed from all appearance of pomp and luxury.

The Waldenses were not without intestine divisions; for such of them as lived in Italy differed considerably in opinion from those who dwelt in France, and the other European nations. The former considered the church of Rome as the church of Christ, though much corrupted; they acknowledged, moreover, the validity of its seven sacraments, and solemnly declared they would continue always in communion with it, provided that they might be allowed to live as they thought proper, without molestation or restraint. The latter affirmed, on the contrary, that the church of Rome had apostatized from Christ, was deprived of the Holy Spirit, and was in reality, that whore of Babylon mentioned in the Revelation of St. John. They were also divided in their sentiments concerning the polliess of worldly goods. In the fourteenth century, the Waldenses, though they were every where exposed to the fury of the inquisitors and monks, baffled all the attempts that were made to extirpate them. Many of them fled out of Italy, France, and Germany, into Bohemia, and other adjacent countries, where they afterwards associated with the Hussites, and other separatists from the church of Rome. In the fifteenth century they subsisted in several European provinces, more especially in Pomerania, Brandenburg, the district of Magdeburg, and Thuringia, where they had a considerable number of friends and followers; though, it is said, that many adherents of this sect, in the countries now mentioned, were discovered by the inquisitors, and delivered over by them to the civil magistrates, who committed them to the flames. After the Reformation, in the sixteenth century, the descendants of the Waldenses, who lived shut up in the valleys of Piedmont, were naturally led, by their situation in the neighbourhood of the French, and of the republic of Geneva, to embrace the doctrines and rites of the reformed church. So far down, however, as the year 1630, they retained a considerable part of their ancient discipline and tenets; but being much reduced by the plague in that year, and deprived of many of their clergy, they applied to the French churches for spiritual succour; and the new teachers, sent from thence, introduced several changes into the discipline and doctrine of the Waldenses, and rendered them conformable, in every respect, to those of the Protestant churches in France. In this century they suffered much from the persecution of Philibert Emanuel, duke of Savoy, who, at the solicitation of the pope resolved to force his subjects to return to the communion of the church of Rome; and in 1561 sent a Dominican friar, as an inquisitor, with forces to effect his purpose. After ineffectual supplications, they took up arms, and so far prevailed, after enduring very severe difficulties, as to obtain some degree of liberty and peace.

During the greatest part of the sixteenth century, those of them who lived in the valleys of Piedmont, and who had embraced the doctrine, discipline, and worship of the church of Geneva, were oppressed and persecuted, in the most barbarous and inhuman manner, by the inquisitors of Rome. This persecution was carried on with peculiar marks of rage and enormity in the years 1655, 1656, and 1696, and seemed to portray nothing less than the total extinction of that unhappy nation. The most horrid scenes of violence and bloodshed were exhibited in this theatre of papal tyranny; and the few Waldenses that survived, were indebted for their existence and support to the intercession made for them by the English and Dutch governments, and also by the Swiss cantons, who solicited the clemency of the duke of Savoy in their behalf. Mohelin's Eccl. Hist. vol. ii. iii. iv. Eng. ed. 8vo. Dupin's Eccl. Hist. of the Sixteenth Century, vol. ii. p. 414. VAUDREVANGE, in Geography, a town of France, in the department of the Meute, on the Sarre; formerly a considerable town, but ruined by the wars in Lorraine; 3 miles N. of Sar-Louis. VAUDREUIL, a town of France, in the department of the Eure. In 1195, the king of France besieged it, and Richard I. king of England, advancing to its relief, a battle ensued, in which the latter had the victory. Vaudreuil had formerly a royal palace; 4 miles N. of Louviers. VAUGELAS, in Biography. See Claude Favre. VAUGIRARD, in Geography, a town of France, in the department of Paris; 2 miles S.W. of Paris. VAUGNERAY, a town of France, in the department of the Rhône and Loire; 8 miles W.S.W. of Lyons. VAULT, FORNIx, in Architecture, an arched roof, so contrived, as that the several stones of which it consists, do, by their disposition, suflain each other. Vaults are to be preferred, on many occasions, to soffits, or flat ceilings, as they give a greater rise and elevation; and, besides, are more firm and durable.

The
VAU

The ancients, Salaminus observes, had only three kinds of vaults: the first, the fornix, made cradle-wife; the second, the sestifuddo, tortoise-wife, called by the French cul de four, or oven-wine; the third, the contesa, made shell-wife.

But the moderns subdivide these three sorts into a great many more, to which they give different names, according to their figures and use; some are circular, others elliptical, &c.

The sweeps of some, again, are larger, and others less portions of a sphere: all above hemispheres are called high, or surmounted vaults; all that are less than hemispheres, are low, or unfurthed vaults, &c.

In some, the height is greater than the diameter; in others, it is left: there are others, again, quite flat, only made with haunies; others oven-like, or in form of a cul de four, &c. and others growing wider, as they lengthen, like a trumpet.

Of vaults, some are single, others double, crosy, diagonal, horizontal, ascending, defending, angular, oblique, pendant, &c. There are likewise Gothic vaults, with penentures, &c.

VAULTS, Mother, are those which cover the principal parts of buildings; in contradistinction to the left, or subordinate vaults, which only cover some little part, as a pallated gate, &c.

VAULT, Double, is such an one, as being built over another, to make the exterior decoration range with the interior, leaves a space between the convexity of the one and the concavity of the other: as in the dome of St. Paul's at London, and that of St. Peter's at Rome.

VAULTS with Compartiments, are such whose sweep, or inner face, is enriched with panels of sculpture, separated by platabands: these compartments, are of different figures, according to the vaults, and are usually gilt on a white ground, are made of stucco, or brick vaults; as in the church of St. Peter's at Rome; and with plaster, on timber vaults.

VAULTS, Theory of. A semicircular arch, or vault, standing on two piers, or impost, and all the stones that compose it being cut and placed in such manner, as that their joints, or beds, being prolonged, do all meet in the centre of the vault; it is evident, all the stones must be in form of wedges, i.e. they must be wider and bigger at top than at bottom; by virtue of which they sustain each other, and mutually oppose the effort of their weight, which determines them to fall.

The stone in the middle of the vault, which is perpendicular to the horizon, and is called the key of the vault, is sufficed on each side by the two contiguous stones, just as by two inclined planes; and of consequence, the effort it makes to fall, is not equal to its weight.

But still that effort is greater, as the inclined planes are less inclined; so that if they were infinitely little inclined, i.e. if they were perpendicular to the horizon, as well as the key, it would tend to fall with its whole weight, and would actually fall, but for the mortar.

The second stone, which is on the right or left of the key-stone, is sufficed by a third; which, by virtue of the figure of the vault, is necessarily more inclined to the second, than the second is to the first; and, of consequence, the second, in the effort it makes to fall, employs a less part of its weight than the first.

For the same reason, all the stones, reckoning from the key-stone, employ still a less and less part of their weight to the last; which resting on an horizontal plane, employs no part of its weight; or, which is the same thing, makes no effort to fall; as being entirely supported by the impost.

Now, in vaults, a great point to be aimed at is, that all the several stones make an equal effort in order to fall: to effect this, it is visible, that as each (reckoning from the key to the impost) employs a still less and less part of its whole weight; the first, for instance, only employing one-half; the second, one-third; the third, one-fourth, &c.; there is no other way to make those different parts equal, but by a proportionate augmentation of the whole, i.e. the second stone must be heavier than the first; the third, than the second, &c. to the last; which should be vastly heavier.

M. de la Hire demonstrates what that proportion is, in which the weights of the stones of a semicircular arch must be increased, to be in equilibrio, or to tend with equal forces to fall; which gives the firmest disposition a vault can have.

Before him, architects had no certain rule to conduct themselves by; but did all at random. Reckoning the degrees of the quadrant of the circle from the key-stone to the impost; the extremity of each stone will take up so much the greater arch, as it is farther from the key.

M. de la Hire's rule is, to augment the weight of each stone above that of the key-stone, as much as the tangent of the arch of the stone exceeds the tangent of the arch of half the key. Now, the tangent of the half stone, of necessity, becomes infinite, and of consequence, its weight should be too; but as infinity has no place in practice, the rule amounts to this, that the last stones be loaded as much as possible, that they may the better resist the effort which the vault makes to separate them; which is called the floor, or drift, of the vault.

M. Parent has since determined the curve, or figure, which the extrados, or outside of a vault, whose intrados, or inside, is spheroidal, ought to have, that all the stones may be in equilibrio. See Arch.

VAULT, Key of. See Key and Vousoir.

VAULT, Reins or Fillings-up of, are the sibles which sustain it.

VAULT, Pendantive of a. See Pendantive.

VAULT, Impoll of a, is the stone on which the first vousoir, or arch-stone of the vault, is laid. See Imposts.

VAULT, in the Minope. To vault a hoarse-hole, is to forge it hollow, for horses that have high and round foals; to the end that the shoe, thus hollowed or vaulted, may not bear upon the sole that is higher than the hoof; but after all, this fort of shoe spoils the feet; for the sole, being tenderer than the shoe, affumes the form of the shoe, and becomes every day rounder and rounder. In Mr. Sulley's Complete Horsemans, may be seen the true method of shoeing high and round foals. See Shoe and Shoebing.

VAULT, or Volte. See Volte.

VAULT, Going to the, a term used by sportsmen for a hare's taking the ground like a coney, which the sometimes does.

VAULT, Ls, in Geography, a town of France, in the department of the Yonne; 3 miles W. of Avallon.

VAULX, a town of France, in the department of the Straits of Calais; 4 miles N.E. of Bapaum.

VAUX Malines, a town of France, in the department of the Hore; 12 miles N.E. of Vienne.

VAUNIA, in Ancient Geography, a town of Italy, belonging to the Bechini. Ptolemy.

VAUNING, in Mineralogy. See Van, Vanning, and Tin.

VAUNT', or VANT. See Van.

VAUNT-Lay, among Hunters, a setting of hounds, or beagles, in a readiness where the chase is to pass; and calling them off before the rest of the kennel come up.

VAUQUE-
VAUQUELIN, in Biography. See Ivetaux.
VAUQUELINIA, in Botany, a genus dedicated by M. Correa de Serra, now the Portuguese minister to the United States of America, to the honour of the celebrated French chemist M. Vauquelin, whose discoveries have been extended to the vegetable kingdom. Humboldt and Bonpland, Plantae equinoxiales, fæc. 6. De Theis 478.
We regret that we are furnished with no further account of this genus, nor with any of its characters.

VAUS, in Geography, a river of West Florida, which runs into the St. Mark, N. lat. 30° 10'. W. long. 84° 36'.

VAUVENARGUES, a town of France, in the department of the Mouches of the Rhône; 6 miles E.N.E. of Aix.

VAUVERT, a town of France, in the department of the Gard; 9 miles S. of Nîmes.

VAUVILLE, a small seaport-town of France, in the department of the Channel, on a bay to which it gives name; 9 miles W. of Cherbourg. N. lat. 49° 39'. W. long. 1° 35'.

VAUVILLERS, a town of France, in the department of the Upper Saône; 12 miles N.W. of Luxeuil.

VAUVINCOURT, a town of France, in the department of the Meuse; 5 miles N. of Bar-le-Duc.

VAUX, L.A., a district of Switzerland, in the Pays de Vaud, between Laufanne and Veyvay, which contains the two pleasant little towns of Lutry and Cully, with the villages of St. Saphorin and Corfer. This district is entirely hilly, rising abruptly from the lake; above the vineyards are rich meadows and a continued forest. In the church of St. Saphorin is an ancient Roman mile-stone with an inscription, which contains two circumstances often questioned; viz. that the banks of the lake of Geneva, which border this part of Switzerland, were comprised within a Roman province, even fo early as the time of Claudius, and also that Aventicum was the chief town of this part of Helvetia; for the mile-stones always referred to the capital of the province in which they were placed, and to the distance of St. Saphorin to Avenches is nearly 37,000 paces. The inscription is as follows:

TI. CLAVDIUS. DRUSUS F.
CÆS. AUG. GERM.
PONT. MAX. TRIB. POT. VIL.
IMP. XII. F. P. COS. III.
F. A.
XXXVII.

VAUXHALL GARDENS, a well-known place of public amusement in the parish of Lambeth and county of Surrey, which belonged, in 1615, to Jane, widow of John Vaux, between whose two daughters the estate was divided, and passed through various hands, till both moieties were purchased, about the middle of the last century, by Jonathan Tyers, esq. It does not appear at what time this place was first opened for public resort; but we are led to conclude from a paper in the Spectator (No. 388.), and another in the Connoisseur (No. 68.), that it must have been so appropriated in or before the time of queen Anne. Mr. Tyers, who held the premises on lease many years before he bought the estate, opened the Spring Gardens, as they were then denominated, in 1730, and expended large sums in embellishing them. After his death they fell into the possession of severall proprietors, of whom the principal is Mr. Barratt. These gardens were, till late years, opened every evening during a great part of the summer, for the reception of company; but they are now admitted only three times a week. The entertainments consist of music, vocal and instrumental, illuminations, and fire-works, and other exhibitions. See Lambeth and Tyers.

VAUZ, in Geography, a river of Pennsylvania, on the Susquehanna; 12 miles N.N.W. of Harrisburg.

VAYHINGEN, a town of Wurtemberg, on the Elzt, with a castle. This town had formerly counts of its own; 11 miles N.W. of Stuttgart. N. lat. 48° 58'. E. long. 59° 54'.

VAYLOO, a town of Hindooftan, in Baraimall; 11 miles S.S.W. of Namaul.

VAYPAR, a town of Hindooftan, in the province of Madura; 25 miles E. of Colpetta.

VAYRES, a town of France, in the department of the Gironde; 3 miles S.W. of Libourne.

VAYU, in Hindoo Mythology, is a name of the regent of the winds, more commonly called Purana; see Vayu. Vayu is the Eolus of the East. One of the Puranas is named after him, being called Vayu Purana. (See Purana.) Yah is another of his names.

VAYVODE, or Vaiwode. See Waywode.

VAZABU, in the Matrias Medica, a name by which some authors have called the acorus晋级, or Asiatice sweet-flag.

VAZCUSE, in Geography, a river of Louisiana, which runs into the Missoura, N. lat. 38° 31'. W. long. 94° 5'.

VAZUA, in Ancient Geography, a town of Africa Prætris, between the river Bagradas and the town of TbarBacra, according to Ptolomy.

UBALDI, Guido, in Biography, an eminent mathematician of noble extraction from a branch of the family of Bourbon, fluided under Condamine, and made early as well as rapid proficiency. Mathematics and mechanics were his favourite objects; but in the latter science he published a work, entitled "Mecanicorum Liber, in qua hac continentur:—de Libra, Væcte, Trochlea, Axe in Peritrochio, Cuneo, Cochlea," Venetis, 1615, fol. In this work he reduces all machines to the lever, applying the same principle with advantage to some of the other mechanical powers, and particularly to the pulley and its combinations. He also explained the structure of the scree of Archimedes, and its application to the rife of water, in a treatise "De Cochlea, LIBRI QUARTO," Venet. 1615, fol. He illustrated the principles and practice of perspective more fully and clearly than other preceding writers had done, but with needles prefix by, in his "Perpæctiva, LIBRI sex," Piaur, 1600, fol. His other works, mentioned by Kullmer, are "Guidi Ubaldi c Marchionibus Montes (of the Marquises del Monte) in duo Amichedus Equi ponderantur Libros Paraphraphis, felohis illustrata," Piaur, 1588, fol. "Problematum Albronomiccum Libri septem," Venet. 1528, fol. The time of his birth and also of his death is unknown. Montuella.

UBAMBA, in Geography, a town of Brazil, near the coast of the Atlantic; 80 miles S.W. of Rio Janeiro.

UBARCO, CAFE, a cape on the N.W. coast of the island of Ivoica. N. lat. 30° 18'. E. long. 19° 18'.


UBATUBA, in Geography, a river of Brazil, which runs into the Atlantic, S. lat. 3° 20'.

UBAYE, a river of France, which runs into the Durance, near Embrun.

UBEDA, a city of Spain, in the province of Jaen, containing 20 parishes, 8 convents, and about 2500 inhabitants. In 1235, Ubeda was taken from the Moors; 3 miles E. of Jaen. N. lat. 38° 3'. W. long. 3° 31'.

UBENITZ,
Opposite to St. Ubes, on the narrow strip of land that forms the entrance of the harbour, are the remains of an ancient city, called Troya. Tradition reports that this place was buried in sand; and that the inhabitants removed and built St. Ubes on the opposite side.

UBI, or UBY, an island in the East Indian ocean, in the gulf of Siam, near the coast of Cambodia; about 21 miles in circumference, with plenty of wood and good water. N. lat. 8° 26'. E. long. 105° 56'.

UBIGAU, a town of Saxony; 6 miles N.W. of Liebenwerda. N. lat. 51° 34'. E. long. 12° 20'.

UBII, in Ancient Geography, a people whose first abode was on the other side of the Rhine, being separated from Gaul by the river. Being afterwards pressed by the Suevi, they had recourse to Caesar. Agrrippa baffled the Rhine, according to Dion Cassius, and transported them to the hither bank of the river and established them, with a view to the security of the adjoining frontier of the empire. Under the reign of Claudius, an Agrippine colony was founded among them, and they voluntarily assumed the name of Agrippinenses, as their attachment to the Romans excited the enmity of Civilians. Their territory extended along the Rhine, from the Treveri to the borders of the Gugerni, who had been a branch of the Menapii. The Ubians, on the right bank of the Rhine, were continually harassed by the Sicambri, and in order to avoid the hostilities of such neighbours, they were induced to cross the river. Agrrippa caused them to build a town, which was called "Civitas Ubiorum," in which he planted a Roman colony, denominated "Colonia Agrippina." This town is the present Cologne. The Ubii formed a part of the Germanic body, which they abandoned in order to enter into a league with the Celtic people. This separation of the Ubians is referred to about the thirteenth year before our era. They worshipped the god Mars.

UBIQUISTS, UBIBIANS, or UBIBIANS, formed from ubique, every where, in Ecclesiastical History, a sect of Lutherans, which rove and spread itself in Germany; and whose distinguishing doctrine was, that the body of Jesus Christ is every where, or in every place.

Brenthus, one of the earliest reformers, is said to have first broached this error, in 1563. Luther himself, in his controversy with Zwingius, had thrown out some unpardonable expressions, that seemed to imply a belief of the omnipresence of the body of Christ; but he became sensible afterwards, that this opinion was attended with great difficulties, and particularly that it ought not to be made use of as a proof of Christ's corporal presence in the eucharist. (Luther, Oper. tom. viii. p. 375; ed. Lemm.) However, after the death of Luther, this absurd hypothesis was renewed, and dressed up, in a specious and plausible form, by Brenthus, Chemnitus, and Andreus, who maintained the communication of the properties of Christ's divinity to the human nature.

Melahonius declared against it; maintaining that it introduced, with the Eutychians, a kind of contusion into the two natures of Jesus Christ; and professed, that he would oppose it as long as he lived.

On the other hand, Andreus, Flavius libyces, Schindlin, Otlander, &c. espoused Brenthus's party; and asserted the body of Jesus Christ to be everywhere.

The universities of Leipzig and Wittenberg, and the generality of Protestants, set themselves against this new heresy, but in vain: the Ubibians grew stronger and stronger. Six of their leaders, Andreus, Schnejere, Mifcellus, Chemnitus, Clytrasus, and Corosus, having a meeting in 1576, in the monastery of Berg, they there com-
posed a kind of credo, or formula of faith, called the "Form of Concord"; wherein the ubiquity was established as an article. See Form of Concord.

Mucius, one of those leaders, and the most zealous advocate of the ubiquity, expressly maintains, that the attention of Christ into heaven was nothing more than a ceasing to be visible, and that it is not performed by any physical motion, or change of place: and in 1557 he published a book to prove that it is by no means necessary, that the glorious body of Christ should physically fill up any space. And he declares in a sermon in 1564, that they who teach that Jesus Christ died only as to his human nature, belong to the devil, both body and soul; and that the true doctrine is, that he died as to his human and divine nature. Hospin. Hifior. Sacram. part ii. p. 492. ad ann. 1561. Idem ibid. p. 553. ad ann. 1564. Idem ibid. p. 600. Bayle, art Mucius.

All the Ubiquists, however, are not agreed: some of them, and among the rest the Swedes, hold that Jesus Christ, even during his mortal life, was every where; others maintain, that it is only since his ascension that his body is every where.

G. Hornius only allows Brentius the honour of being the first propagator of ubiquitism; its first inventor, according to him, was John of Wedithala, or Wethphalus, a minister of Hassingham, in 1553.

But according to Hospinian, Wethphalus opposed the opinion concerning the ubiquity advanced by Brentius and Schmidelin. Bayle, art. Wethephalus.

Ubiquist, in the University of Paris, is a term applied to such doctors in theology, as are not restrained to any particular house; either to that of Navarre, or Sorbonne. The Ubiquists are called, simply, doctores in theologia; whereas the others add, de the house of Sorbonne, or Navarre, &c. See Sorbonne.

Ubiquity, Omnipresence; an attribute of the Godhead, whereby he is always intimately present to all things; gives the effe to all things; and knows, prefers, and does all in all things.

For since God cannot be said to exsit in all places, as placed therein, (because, then, he would need something to his existience, viz. place; and would have extension, parts, &c.) he must be conceived to be every where, or in all things, as a first, universal, efficient cause, in all his effects.

If God is present, therefore, to all his creatures, as a pure act, or an exercise of an active virtue, which knows, prefers, governs, &c. every thing. Nor are even finite minds prefect otherwise than by operation. See God.

Ubiquity of the King. See King.

Ubirre, in Ichthyology, a name given by some to the anguilla marina, or small sea-eel.

Ubium, in Botany, altered by Rumphius, Herb. Amboin. book 9. 346, from the Malay name Ubik, a synonym of some species of Dioscorea; see that article. Forster declares all the kinds of Ubium, mentioned by Rumphius, to belong to D. alata. These differ chiefly in the shape of the roots, and in the stems being furnished or not with fleshy buds, or bulbs, of different forms. These roots constitute one of the most important articles of food, in the remote islands of India and the South Seas.

Ubn, in Geography, a town of Walachia; 10 miles N. of Viddin.

Uboa, a town on the west coast of the island of Luçon. N. lat. 16° 57′. E. long. 120° 48′.

Ubraye, a town of France, in the department of the Lower Alps; 9 miles N.E. of Caffelane.

UBRILEN, a town of the Arabian Ira; 5 miles S.E. of Baffora.

UBRIX, in Ancient Geography, a town of Africa, on the coast of Libya. Ptolemy.

UCA, a town of Asia, in the interior of Media. Ptolemy.

UCANDO, in Geography, a town of Portugal, in the province of Beira; 2 miles N. of Lamego.

UCAYALE, Ucaial, or Ycayale, a river of South America, formed by the union of the Apurimac and Ene, in S. lat. 10° 50′. It pursues a northerly course to S. lat. 4° 15′, where it joins the Maranon, near St. Joachim de Omágues, and then takes the name of the Amazonas. See Maranon.

UCENA, in Ancient Geography, a town of Asia, in Galatia, belonging to the Trochmi. Ptolemy.

UCELI, a people placed by the inscriptions on the trophy of the Alps, mentioned by Pliny, near the Medulli and the Caturiges, and supposely by Sanlon to be the fame with the Siconii or Iconii, mentioned by Strabo.

UCETERA, a town of Gallia Narbonensis.—Alfo, a town of Gallia Tranpadana. Strabo.

UCHALIGES, a people of Africa, in Libya Interior. Ptolemy.

UCHENDGE, in Geography, a town of the principality of Georgiæ, and chief place of a district, situated to the east of Tepit. In 1395, this town was taken by Timur Ben, and the whole garrifon put to the sword.

UCHINCHIR, one of the small Kurile islands, in the North Pacific ocean. N. lat. 48° 30′. E. long. 153° 44′.

UCHKILISSA, a town of Persia Armenia; 18 miles N.W. of Erivan.

UCHT, a river of Brandenburg, which runs into the Aland, near Olterburg.

UCHTILHASEN, a town of the duchy of Wurz- burg; 6 miles E. of Schweinfurt.

UCIBI, in Ancient Geography, a town of Africa Propria, in Numidia Nova. Ptolemy.

UCIMATH, a town of Africa, in Libya Interior, upon the northern bank of the river Gird. Ptolemy.

UCK, in Geography, a river of Pomerania, which empties itself into the Friiche-Haff, 1 mile N. of Ucker- munde.

UCK Mark. See Brandenburg.

UCKER, see a confiderable lake of Brandenburg, in the Ucker Mark, situated to the north of Prenzlau.

UCKERMUNDE, a town of Anterior Pomerania, situated on the river Ucker, near its entrance into the Friiche-Haff. This town was surrounded with walls in 1190. In the 17th century it suffered greatly by sieges, and the vicissitudes of war; and in 1713, was sacked by the Russians. It has good fisheries, pastures, and woods; 29 miles N.N.W. of Old Steettin. N. lat. 53° 48′. E. long. 13° 57′.

UCKEWALLISTS, in Ecclesiastical History, a sect of rigid Anabaptifts, so called after its founder Uke Walleis, a native of Friesland. This fectary not only exhorted his followers to maintain the primitive and auterie doctrine of Menno, but took it into his head to propagate, in connection with one John Leus, in 1637, a fegular opinion concerning the salvation of the human, and the reft of Christ's murderers; alleging, that the period of time, which extended from the birth of Christ to the defection of the Holy Ghost, and was, as it were, the diftinctive term that separated the Jew from the Chriffian defpiation, was a time of profound ignorance, during which the Jews were deifie both of light and divine succour; and that, confi
quently, the sins and enormities, that were committed during this interval, were in a great measure executable, and could not merit the fevered displays of the divine justice. This idle fiction met with no indulgence either from the Monnenetos, who excluded its inventor from their communion, or from the magistrates of Groningen, who banished him from the city. In East Friesland he drew after him a considerable number of disciples, whose defendants still furbish in the neighbourhood of Groningen, Friesland, and also in Lithuania and Prussia, and have their own religious assemblies, separate from those of the other Monnenites. They re-baptize all who leave other Christian churches to embrace their communion: they studiously avoid every appearance of elegance or ornament; suffer their bristles to grow to an uncommon length, and their hair to lie uncombed over their shoulders: their countenances are marked with melancholy; and their houses only adapted to answer the demands of necessity. Their inspectors or bishops, whom they distinguish from the ministers whose office is to teach, are chosen by an assembly composed of all the congregations of the sect. The ceremony of washing the feet of strangers is considered by them as a rite of divine institution. They carefully avoid even the aspect of learning and science, and thus prevent all attempts to alter or modify their religious discipline. Moheim's Eccl. Hist. vol. v. 8vo.

UCLES, in Geography, a town of Spain, in New Castile. In 1108, a battle was fought near this place between the Christians and the Moors, in which the former were defeated with great loss; 20 miles S.W. of Huete.

UCO, a town of Chili; 9 miles E.S.E. of St. Yago.

UCRIA, a town of Sicily, in the valley of Demona; 8 miles W.S.W. of Patti.


Gen. Ch. Cal. Perianth superior, of one leaf, short, cup-shaped, with five angles, and five cleft, acute teeth, permanent. Cor. of one petal, tubular; tube extremely long and slender, cylindrical, pellucid; limb bell-shaped, with five rather short, ovate, acute, equal, slightly spreading, marginal segments. Stam. Filaments five, very short, inserted into the limb between the segments; anthers incumbent, oblong, pointed, of two cells. Pet. Germin inferior, elliptical; style the length of the tube of the corolla, thread-shaped; swelling and hairy at the top; stigma of two rounded lobes. Peric. Berry elliptical, fleshy, of two cells, crowned by the permanent calyx. Seeds numerous, roundish, inserted into the middle of the partition at each side, and surrounded with viscid pulp.


1. U. speciosa. Willd. n. 1. (Tocoyena longiflora; Aubl. t. 50.)—Native of woods in Guiana, bearing flowers as well as fruit in August. Stem shruny, simple, about three feet high, obtusely quadrangular, leafy. Leaves opposite, falcate, fifteen inches long; lanceolate, acute, entire, smooth, contracted at the base, with one rib and many transverse veins. Stipulas in pairs, intrafollicose, ovate. Flowers about fourteen, crowded at the top of the stem, sessile, opposite, erect, very fragrant, white, with a yellow tube, nine inches and a half long, the thickens of a goose-quill. Calyx very small. Berry yellow, an inch in length.

This plant comes very near to Gardenia, or at least to Thunberg's Rothmannia. (See Gardenia.) We do not profess to have had sufficient opportunities of comparing them and their allies, to form an accurate judgment. Willdenow has changed the specific name without any authority or reason.

UCUBIS, in Ancient Geography, a town of Spain, in Bottica.

UDA, in Geography, a river of Russia, which runs into the Velika, 12 miles N.W. of Ongoka, in the government of Piltov.—Also, a river of Russia, which joins the Tchiuna, N. lat. 55° 50'; E. long. 99° 22'.—Also, a river of Russia, which runs into the Selenga, near Verch Udink.—Also, a river of Russia, which runs into the sea of Ochotch, N. lat. 55° 15'. E. long. 178° 44'.

UDACENSES, in Ancient Geography, mountains of Asia, in Corduena, south of the lake Arliffa, lat. 37° 30'.

UDAL. See Odial.

UDASSA, in Geography, a town of Hindooftan, in Goondwana; 12 miles N.W. of Nagpooor.

UDAWANTANAGUR, a town of Hindooftan, in Bahar; 5 miles S.S.W. of Arrah.

UDDALA, in Hindoo Mythology, is the name sometimes given to a theologian, who is said to be the son of Aruna, the charioter of the sun. He is not often read of. Respecting his parent, who corresponds with the Aurora of western fable, notice will be found under our article Surya, the common name of the Hindoo Theburs.

In the theogonies of the Puranas, when describing the process of churning the ocean, as mentioned in our article Kurumavatara, a goddess, named Jyefta, was produced. She is deemed the goddesses of poverty and misfortune, and having rose from the sea earlier than Lakthmi, the goddess of riches and fortune, is called her elder sister. Vithnu, enamoured of the latter, wished to elope her; but she objected, saying her elder sister, agreeably to the injunctions of the Vedas, ought to be married first. And this we may remark, in passing, is a rule in force at this day, though not invariably observed. Vithnu, after much difficulty, prevailed on Uddalaka the Rishi, who was unmarried, to take the undelirable damsel to wife; and Sagara, her father, sealed the nuptial ceremony by pouring water into the hands of the Rishi. (See Sagara.) Jyefta, like Lakthmi, is called the daughter of the ocean, and is celebrated as being ever faithful to her comfort. She is sometimes called Srefta.

Under the article Rishi will be found an account of the holy men so designated. One of them taking the goddesses of poverty to wife, means, we may suppose, the usual profession of poverty by pious perfons. It was no small sacrifice of comfort to be linked to such a rib: for Jyefta is described to have arisen in black garments, with yellow hair, red eyes, wanting many teeth, those remaining of repelling appearance, her tongue lolling out of her mouth, potbellied, &c. &c.; so that gods and demons were amazed at the sight of such a figure. Such a one is described, from an image in the East India House, in our article Kali. Her younger sister, on the contrary, is described as superlatively fascinating, but fickle; being a personification of Fortune.

UDDEN, in Geography, a town of Arabia, in the province of Yemen; 44 miles E.S.E. of Zebid. N. lat. 15° 5'. E. long. 43° 50'.

UDDE,
UDDER, in Rural Economy, a term applied to the glandular organ which is destined for the preparation and secretion of the milk in cows, mares, ewes, fows, or any other kinds of domestic animals, and which is often much subject to disease.

It is to be noticed, that the udders of young cows which are in a high condition, are sometimes very greatly swollen and inflamed for several days before they calve; in which cases, it is mostly proper to milk them frequently in repetition, and alternately to anoint the diffused parts, in some severe infances, with a fururine cooling ointment, and brandy, or some other quickly evaporating spirit; as, by such means, these swellings are often speedily removed, without much danger or inconvenience. But, besides these sorts of swellings, the udders of cows are liable to injuries, which are often of a more serious consequence, as from falls, blows, the wounds of sharp instruments, or such as are pointed, and the violent hacking of calves, as well as from the injudicious or rough treatment of harsh and inexperienced milkers. In all such cases, while the inflammation in the glands remains in a hard and indolent state, the parts so affected should be repeatedly anointed in the course of the day with some gentle cooling substanct, such as fresh lizard, or with a solution consisting of one ounce of Caltice soap, dissolved in a pint, and a half of new milk, over a moderate fire, constantly stirring it until it becomes thoroughly mixed and incorporated. An ointment, too, prepared from the juice of the leaves of the common thorn-apple, by mixing it with fresh hog’s-lard, is said by some to be an excellent application in cases of this nature. Such tumours may likewise, in many instances, be anointed with a little of a composition, consisting of camphor dissolved in spirit and blue ointment, with great benefit; and about half a dram of calomel may be given in a hornful of treacle and warm beer, three or four mornings together, if the swelling should continue to increase. Where, however, the udder and teats are considerably inflamed and swelled, other internal remedies may be had recourse to; for which purpose, it has been recommended to mix four ounces of nitre with one pound of common salt, and to give two table spoonfuls of the powder in a gallon of thin water-gruel every three hours. But in cases where the affection, in such instances, should have made, from neglect, such progress as to displace large hardish tumours in the parts, fomentations of the sort given below may often be applied with advantage. Boil in a sufficient quantity of water one handful of the leaves of common hemlock, the fame quantity of the dwarf or round-leaved mallow, and an equal proportion of common melilot; and diligentlly apply the liquid, by means of cloths wrung out of it, to the part or parts, as warm as the beast can bear it. As soon as the tumour or tumours, in this case, bursts or opens, the wound should be well and properly cleaned, and then covered with a pledge of lint, and a platter of common cerate or balacim laid over all.

The remedy directed below, it is said, has been employed with great success in very obstinate cases of ulcerated cattle udders: one ounce of gum ammoniacum, the same quantities each of gum galbanum, Caltice soap, and extract of hemlock; reduce the gums into powder, and form them with the soap and extract into eight small balls, one of which is to be given to the beast every night and morning. In cases where the teats only are sore, they may first be washed well with clean warm soap-lads, and then rubbed with an ointment, composed of finely powdered cerule or white lead, which has previously been tinctured with brandy, and well mixed and united with a proper quantity of elder ointment or goose-grace.

In the case of sheep too, these parts are often much affected, when the lambs are yeaned in the ewes, the lactiferous ducts in the udders of which are liable to become attacked with various obstructions, which are the consequence of hard tumours or swellings being formed, which are accompanied with inflammation, and which, if not speedily relieved, will terminate in mortification, not unfrequently in the course of twenty-four hours. As soon as such swellings or tumours are discovered, the wool should be shorn off closely in a careful manner, and the part affected be frequently wetted and rubbed well with camphorated spirit of wine. If, however, suppuration should ensue, the part should be laid open by a strong lancet or sharp knife, and the matter be discharged, when a pledge of lint should be laid over the part, and secured by a plaster spread with some soft ointment, or the common cerate rubbed with a little oil. Ewes, when thus affected, should be kept separate from the rest of the flock, and though one of the nipples may be lost, they may be allowed to fuckle their lambs; but in cases where both are affected, there is, of course, no alternative but that of fattening them off for sale, and to bring up their lambs by hand in the best manner possible.

The udders and nipples of ewes are likewise very apt to be irritated, chafed, and fretted, by which the lambs are prevented from being let suck in a proper and ready manner; consequently, in all such cases, the parts so affected should be kept as cool as possible, and be well washed with a weak solution of white vitriol in rain-water, or be anointed with some mild softening ointment, such as that of elder, or common cerate softened with oil, once or twice in the day; care being taken to keep them well removed by the use of warm water and a little soft soap, before the lambs be again admitted to them for suckling.

The diseased of the udders, in the other sorts of domestic animals, are, for the most part, to be treated in a similar manner, according as the nature of them may be: always having the parts carefully cleaned, before the young are suckled.

UDDER-Locking, a term used in the management of sheep, to signify the practice of clearing away the locks of wool from about the udders, and other parts, where the lambs suck, in ewes. Some sheep-farmers have a very high opinion of the necessity and utility of this custom, while others as strongly condemn it, and consider it to be quite unnecessary, as well as dangerous and hurtful both to the ewes and the lambs. It may, however, be useful in different cases and circumstances. The former, or those in favour of the practice, recommend that, immediately before the ewes begin to drop their lambs, they should be carefully driven into the yards, folds, or pens, and have a small part of the locky wool pulled off from about their udders, in order to give the lambs more easy and ready access to the teats or nipples, by which they come forward faster, and succeed better. But the latter, or those who object to the custom, think that they have seen instances where it occasioned not only the death of nearly one-twentieth part of the ewes, but that many of those which survived it, lambed dead lambs at the danger and hazard of their own lives. They suppose that there is naturally a sufficient space left bare about these parts, so as to enable the young lambs to find the dugs or nipples; and that the uncovering more, or a larger extent of parts, serves only to starve and expel the ewes in the most tender and delicate parts; as, although they have been engaged among sheep the whole of their lives, they have never seen a single lamb die from the want of its dam or mother being udder-locked, even though the
may have been ever so young, or ever so rough in such parts; nor have they ever met with any persons who could be certain that they had seen any. How far some breeds of sheep, as those of the Cheviot, may have their lambs more readily or more easily killed or destroyed in this way, or whether it may not be owing to the shape of the udders in their dams, which being more full and expoded in such parts, is not by any means well known; but far less injury or exposure, in this or in any other way, will make that breed of sheep lamb dead lambs, it is said, than in the forest, or probably some other breeds.

But though this practice may often be found prejudicial in the more northern parts of the kingdom, in the southern sheep districts it may not unfrequently be had recourse to with very considerable utility and advantage in different respects.

UDDEVALLA, in Geography, a sea-port town of Sweden, in the province of Halland, with a strong fort and convenient harbour. The inhabitants carry on a considerable trade in iron, planks, and herrings; their number is about 9000; 205 miles W.S.W. of Stockholm. N. lat. 58° 21'. E. long. 11° 45'.

UDEBOEDE, a town of the island of Ceylon; 60 miles S. of Candi.

UDEGHERRY, a town of Hindoostan, in the Carnatic; 43 miles N.W. of Nellore. N. lat. 14° 43'. E. long. 79° 16'.

UDÉM, a town of France, in the department of the Aisne; 7 miles S.S.E. of Cleves.

UDERFONDA, a town of Hindoostan, in Mysoor; 20 miles N.W. of Amuntpour.

UDERWANGEN, a town of Prussia, in Natangen; 12 miles S.S.E. of Königsberg.

UDI, a town of Egypt; 10 miles N. of Aitfich.

UDJARMA, a town of the principality of Georgia, in the province of Kakhet; 24 miles E. of Tiflis.

UDICA denotes the projecting part of a barges stern, on which its name, &c. is printed.

UDINA, or UDINE, in Geography, a town of Italy, and capital of Friuli; to which, on the decline of Acquileia, the patriarch removed his seat. It has several churches, convents, and hospitals, a college for the study of law, and a military academy: and it is said to contain between 17,000 and 18,000 inhabitants; 35 miles N.W. of Trieste. N. lat. 46° 10'. E. long. 13° 14'.

UDINE, Giovanni da, in Biography, was the cousin of an assistant of Raffaello in the works of the Vatican, whose real name was Nanni. His family resided at Udine, (where he was born in 1454,) and had there followed the occupation of embroiderers with so much excellence, as at length almost to have lost their own name in that of Ricamatori, by which Vafiari often calls him. His father, become rich, amased himself with hunting; and his son Giovanni found his sport, at a very early period of his life, in drawing the animals, birds, &c. brought him from the chase. This indication of taste for painting was encouraged, and the youth was placed under the tuition of Giorgione, at Venice, with whom he acquired a knowledge of colour and chiaro-scuro. About the time of the death of Giorgione he went to Rome, and being furnished by his protector, the patriarch Grimani, with letters to count Baldassare Cattiglione, he was introduced to Raffaello, who admitted him into his school, and employed him in painting the grotesque and ornamental accessories of his larger works. The imagination of this master Raffaello, and of himself, was led to the introduction of this species of ornament, by the discovery of the painted chambers in the baths of Titus, then recently opened, when Giovanni was employed in making designs of the beautiful ornaments in ituco found there, and thence denominated grotesque. In pursuing these studies, he discovered the composition of the Italian inventions or rather in which they were painted; and with the same materials he, by order of Raffaello, prepared the walls and ceilings of the Loggie, and painted upon it the beautiful series of ornamental combinations of flowers, fruit, animals, vases, &c. since then so much employed in adorning the dwellings of the rich and great. This part of the work was entirely entrusted to Giovanni da Udine, under whose directions a number of ingenious young men were employed; and the taste and ability, the freedom and truth, without minuteness, with which the whole is managed, has ever since been a constant subject of praise and admiration. After the death of Raffaello, he was employed by Clement VII., in conjunction with Perino del Vaga, to ornament that part of the Vatican called the Torre di Borgia. When he was compelled to leave Rome by the sickness of that city, he was employed for a time at his native place, and afterwards engaged at Florence in adorning the palace of the Medici; and returning to Rome in the pontificate of Pius IV., left in various places there mementos of his admirable ingenuity. He died there, at the age of seventy, in 1564, and had the honour to be buried in the church of La Rotonda, (the Pantheon,) next the tomb of his renowned master.

UDINE, Martino da, called Pellegrino di San Danielo, was born at the castle of San Danielo, near Udine, about the year 1480, and was a disciple of Giovanni Bellini. He pursued the style of that master in the many religious subjects he treated for altar-pieces at Udine and his native place, where his works are principally to be found; though it is said, in addition to his fame, that something of Giorgione's breadth may be discovered in his latter productions. He died about 1514.

UDINSK, Nizhni, in Geography, a town of Russia, ia the government of Irkukh, situated on the river Uda; 260 miles N.W. of Irkukh. N. lat. 54° 15'. E. long. 98° 50'.

UDINSK, Vercbein, a town of Russia, in the government of Irkukh, on the Selenga; 88 miles E. of Irkukh. N. lat. 51° 20'. E. long. 107° 20'.

UDINSKA, a town of Russia, in the government of Irkukh, at the confluence of the Uda and the Angara; 140 miles W.N.W. of Irkukh. N. lat. 54° 12'. E. long. 107° 1'.

UDINSKA, Now, a town of Russia, in the government of Irkukh, on the Uda; 24 miles S.E. of Udinsk.

UDITTA, in Antiqu Geography, a town of Africa Pro peers, between the Two Syrtis. Ptolemy.

UDNON, in Botany, the name by which Theophrasus and Dioscorides have called the truffle commonly used at table in their times; but we find that they were not acquainted with a better kind of truffle, which we cultivate at present.

This smooth reddish-coated truffle is common in Italy at this time, and is esteemed of no value, and called the wild truffle: the fort that is eaten there, and in all other parts of Europe, is the blackish and rough-coated kind. In Africa they have a yet finer kind than ours: it has a white coat, and is of the most delicious flavour. The Greeks were also acquainted with this, and denominated it Cyrena, as they did almost all the things they had from Africa; they also gave it the name autt.

UDO, in the Materia Medica, a name given by the Portugese to the lignum aloes.

It seems only a corruption of the monosyllable sal, by which...
which the Arabian physicians have called that drug; and even this as possibly was only a construction of the orthography of the word *bead*; which seems to have been the original name of this drug among the Arabs.

We do in *Geography*, a town of Japan, in the island of Nippon; 60 miles W. N. W. of Jedo.—Also, a town of Japan, in the island of Ximo. N. lat. 32° 30'. E. long. 132° 30'.

*Udorn*, in *Ancient Geography*, a river of Aiasic Sarmatia; the mouth of which, according to Ptolemy, was in the Caspian sea, between that of Abontas and that of Rhia.

*Udrigill Head*, in Geography, a cape of Scotland, on the W. coast of the county of Ross. N. lat. 57° 54'. W. long. 5° 31'.

*Udssi*, a town of Japan, in the island of Nippon; 15 miles S. W. of Meaco.

*Udskoi*, a town of Ruffia, in the government of Irkutsk, on the Uda; 1100 miles E. N. E. of Irkutsk. N. lat. 55° 16'. E. long. 135° 50'.

*Udstein*, a small island near the coast of Norway; 9 miles N. W. of Stavanger.

*Uduar*, a town of the island of Ceylon; 26 miles S. E. of Galle.

*Udvarhely*, a town of Transylvania; 22 miles N. E. of Scheburg. N. lat. 46° 30'. E. long. 24° 54'.

*Udumnaevskoi*, a fort of Ruffia, in the government of Irkutsk; 88 miles S. W. of Nertchinok.

*Udura*, in *Ancient Geography*, a town of Hifpania Citerior, belonging to the Taccatani. Ptolemy.

*Vea*, in *Geography*, a town of Persia, in the province of Segeltan; 52 miles N. of Zareng.

*Veadar*, in *Chronology*, the thirtieth month of the Jewish ecclesiastical year, answering commonly to our March: this month was intercalated, to prevent the beginning of Nisan from being removed to the end of February.

*Veagues*, in *Geography*, a town of France, in the department of the Cher; 6 miles S. W. of Sancerre.

*Veal Town*, a town of New Jersey; 14 miles N. N. W. of New Brunswick.

*Veas*, a town of Spain, in the province of Seville, on the Oder; 8 miles N. N. E. of Gibralate.

*Veascium*, in *Ancient Geography*, a town of Italy, allied to the Romans; it was attacked by the Gauls on their departure from Rome, but they were surprised and routed by Camillus. Plutarch says, that the Gauls, on leaving Rome, encamped eight miles from this town in Latium.

*Vebron*, in *Geography*, a town of France, in the department of the Lozere; 6 miles S. of Florac.

*Vecchi, Orazio*, in *Biography*, born at Milan, and many years maestro di cappella at Mantua, gained great reputation, not only as an able musician, but a poet. His numerous canzonets for three and four voices, published at Milan and Venice, from 1580 to 1613, were reprinted and sung all over Europe. Our countryman, Peacham, who had received instructions in music from this composer, during his residence in Italy, speaks of him in the following manner: "I bring you now mine other, Horatio Vecchi, of Modena, who, beside goodnights of airs, was most pleasing of all other for his concept and variety, wherewith all his works are singularly beautiful, as well his madrigals of five and six parts, as those his canzonets, printed at Norimberge." (Complete Gentleman, p. 102.) He then infances and points out the beauties of several of his compositions, that were most in favour during that time. Besides secular music, Vecchi composed two books of sacred songs, in five, fix, seven, and eight parts; masses of five and eight voices, and four-part laments.

Vecchi has been erroneously suppos'd by many of his countrymen the inventor of the burletta, or comic opera in Italy; and it was the opinion of the learned Muratori (La Perfetta Poetia, lib. iii. cap. 4.), that a musical drama or farce, called Anfpamaro, written and set by the celebrated Orazio Vecchi, and acted and printed at Venice, 1597, was the origin of the Opera Bufia; which fee.

*Vecchia*, Pietro, born at Venice in 1605, was a painter, educated in the school of Paduanos, but more an imitator of Giorgione and Pordenone; and some of his pictures have been mistaken for works of those masters. Sandarct relates a story of his having been deceived by a picture of Vecchia, which he mistook for one by Giorgione. From this talent of imitating others, the doge and senate of Venice employed him to copy the ancient works in mosaic which are preferred in the church of St. Marc. And in that church are also two original and very able pictures by him, representing the Crucifixion, and Christ driving the money-changers from the temple. His colouring is rich and warm, and his execution free and full, but sometimes apt to be incorrect. He died in 1678, aged seventy-three.

*Vecelli* Titiano. See Titian.

*Vecelli, Orazio*, son of Titian, born at Venice in 1540, practised the art of painting under his father's tuition, but became distinguished only as a painter of portraits, some of which were esteemed as little inferior to those of his father. He died in the same year with his father, 1576.

*Vecelli, Marco*, called Marco da Tiziano, was the nephew and disciple of Titian, and born at Venice in 1545. He appears to have been regarded by his great instructor with peculiar favour, and certainly his talent gave him the fairest claim to such distinction; for he approached the nearer to Titian, both in colour and composition, of all his discipiles, and has left several original works, very deservedly esteemed, in the Palazzo di San Marco. He also executed several considerable works for the churches in Venice, Treviso, and in the Friuli. He died in 1611, leaving a son, known by the name of Il Tizianello, who obtained much repute by his paintings, but they are in a loose and mannered style: his bell productions are his portraits.

*Vechn*, in *Geography*, a river which rises in the biform of Munster, about six miles N. E. of Coesfeld, crosses Bentheim and Overell, and runs into the Zuyder See at Gelmnyden.—Also, a river which passes by Utrecht, and runs into the Zuyder See at Muyden.

*Vechta*, a town and fortress of Germany, in the biform of Munster; 60 miles N. E. of Munster. N. lat. 52° 43'. E. long. 8° 18'.

*Vecs*, a town of Transylvania; 16 miles E. S. E. of Bittriz.

*Vectis*, in *Ancient Geography*, an island of the British ocean, S. of the Portus Magnus, or Great Haven, according to Ptolemy and Pliny.

*Velis*, in *Mechanics*, one of the powers, more usually called the lever; which fee.

*Veltis*, Heterodromus. See Heterodromus.

*Vector*, in *Astronomy*, a line supposed to be drawn from any planet moving round a centre, or the focus of an ellipse, to that centre, or focus.

This, by some writers of the new astronomy, is called vector, or radius vector, because it is that line by which the planet

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"and"
VEDA.

plane seems to be carried round its centre; and with which it describes areas proportionate to the times.

VEDA, the name by which the Hindoos designate the collective body of their scripture. They enumerate eighteen parts of true knowledge, as follow: four Vedas, four Upavedas, six Angas, and four Upangas. The prefixtre as inferred a work deduced from its principal; like our sub, implying inferiority.

The first four, according to a native writer, quoted by Sir W. Jones, are the immortal Vedas, evidently revealed by God, which are entitled, in one compound word, Rig-yaajfamambarva; or, in separtate words, Rig, Yajura, Saman, and Atravah. The Rigveda consists of five sections; the Yajurveda, of eighty-six; the Samaveda, of a thousand; and the Atravahveda, of nine; with eleven hundred jachas, or branches, in various divisions and subdivisions. The Vedas in truth are infinite; but were reduced by Vyasa to this number and order. The principal part of them is that which explains the duties of man in a methodical arrangement; and in the fourth is a system of divine ordinances.

From these are deduced the four Upavedas; viz. Ayuh, Gandharva, Danuhi, and Sthapatya. The first of which was delivered to mankind by Brahma, Indra, Dhanwantari, and five other deities; and comprises the theories of physicians and medicines, with the practical methods of curing diseases. The second, on music, was invented and explained by Bharata: it is chiefly useful in raising the mind by devotion to the felicity of the divine nature. The third Upaveda was composed by Viphimitra, on the fabrication and use of arms, and implements handled in war by the tribe of Kikletiya. Vifwakarma revealed the fourth, in various treatises on forty-four mechanical arts, for the improvement of such as exercise them. Of the perfonages named above, viz. Brahma, Indra, Viphimitra, Viphwantra, and Vyasa, see under these words respectively. Of Dhanwantari, some mention is made under our article KURNAVATARA.

The fix Angas, or bodies of learning, are also, according to the same native authority, derived from the same source. We omit their names and contents: their subjects chiefly are, 1. Of the pronunciation of vocal sounds. 2. Detail of religious acts and ceremonies. 3. Grammar. 4. Proody. 5. Aironomy. 6. On the signification of difficult words and phrases in the Vedas.

Lastly, continues the same author, there are four Upangas, called Purana, Nyaya, Mimansa, and Dhermafastra. (See PURANA, NYAYA, and MIMANSA.) Eighteen Puranas were composed by Vyasa, for the instruction and entertainment of mankind in general. Nyaya is a collection of treatises in two parts, on metaphysics, logic, philosophy, &c. Mimansa is similarly divided into two parts; the latter, abounding in questions on the divine nature, and other sublime speculations, was composed by Vyasa in four chapters and fifteen sections. It may be considered as the spring of all the Angas; it expoes the heretical opinions of sophists; and, in a manner suited to the comprehension of adepts, it treats on the true nature of Ganea, Bhaskara or the Sun, Nalakantha, Lakhimi, and other forms of One Divine Being. Of Ganea, the god of prudence and sagacity, see under POLEBAR. Bhaskara is a name of Surya. Nalakantha is a name of Siva, the name as Shukakooda. Lakhimi is the consort of Vichnu.

The body of law, called Smrist, consists of eighteen books, &c. delivered for the instruction of the human species by Menu, and other sacred perfonages. As to

ethics, the Vedas contain all that relates to the duties of kings, the Puranas, what belong to the relation of husband and wife; and the duties of friendship and society (which complete the triple division) are taught succinctly in both. This double division of Angas and Upangas may be considered as denoting the double benefit arising from them in theory and practice.

To the above native account of the Vedas, Sir W. Jones adds an ingenious commentary. He says that the Vedas consist of three kandas, or general heads; viz. Karma, Jnyana, and Upana; or works, faith, and worship. To the first of which, the author of the Vidyadara, or View of Learning, a rare Sanscrit book, wisely gives the preference; as Menu himself prefers universal benevolence to the ceremonies of religion.

After all, continues this instructive writer, the books on divine knowledge, called Veda, or what is known, and Sruti, or what has been heard from revelation, are still supposded to be very numerous; and the four here mentioned are thought to have been selected containing all the information necessary for man. It must not be omitted, that the commentaries on the Hindoo scriptures, among which that of Vaidhita (see VASISHTHA) seems to be the most excellent, are innumerable.

From the Vedas are immediately deduced the practical arts of chirurgery and medicine, music and dancing; archery, which compries the whole art of war; and architecture, under which the system of mechanical arts is introduced.

Next in order to these are the fix Vedagas; three of which belong to grammar; one relates to religious ceremonies; a fifth, to the whole compass of mathematics; and the sixth, to the explanation of obscure words or phrases in the Vedas. Subordinate to these Angas, though the reason of the arrangement is not obvious, are the series of sacred poems (see PURANA), the body of law, and the fix philosophical faltras or hitakas. See PHILOSOPHY OF THE HINDOOS, AND SHASTHA.

In the commentary whence we quote parts of this article, Sir William Jones gives some of the reasons that induced him and Mr. Wilkins to believe, notwithstanding the mythological fable of Brahma's four mouths, each of which uttered a Veda, that the fourth, or Atharvaha, was written or collected after the other three; but Mr. Colebrooke, in the fifth volume of the Asiatic Researches, after noticing some texts and arguments on which that belief might be reasonably grounded, gives his own reasons and proofs in support of a contrary opinion. He thinks it probable that some portion at least of the Atharvaha, is as ancient as the compilation of the three others; and its name, like theirs, is anterior to Vyasa's arrangement of them; but the fame, he adds, must be admitted of the portion called Itahafa and Purana, which constitute a fifth Veda, as the Atharvaha does a fourth.

The Hindoos believe that the original Veda was revealed by Brahma, and to have been preferred by tradition until it was arranged in its present form by a sage, who hence obtained the name of Vyasa, or the compiler; or Vedavyasa, that is, compiler of the Vedas. He distributed the Hindoo scripture into four parts, as already enumerated; each bearing the common denomination of Veda.

With the Hindoos it is an article of their creed, that the Vedas were composed by no human author. It must be understood, therefore, that in affirming the primeval existence of their scripture, they deny these works to be the original composition of the editor (Vyasa), but believe them to have been gradually revealed to inspired writers.
VEDA.

It appeared to Mr. Colebrooke from several other passages, and from the received opinion of the Hindoos themselves, that the Rich, Yajush, and Saman, are the three principal portions of the Veda; and the Atharvava is commonly admitted as a fourth; and that divers mythological poems, entitled Itahafa and Purana, are reckoned a supplement to the scripture, and as such constitute a fifth Veda.

The Vedas are a compilation of prayers, called Mantra; with a collection of precepts and maxims, entitled Brahmana: from which last portion, that called Upanishad is extracted. The prayers are properly the Veda, and apparently preceded the Brahmana. Each Veda consists thus of two parts, the Mantras and the Brahmanas; or prayers and precepts. The complete collection of the hymns, prayers, and invocations belonging to one Veda, is called its Sanhita; every other portion of Indian scripture is included under the general head of divinity (Brahmana): this comprises precepts, which inculcate religious duties; maxims, which explain those precepts; and arguments, which relate to theology. But in the present arrangement of the Vedas, the portion which contains passages called Brahmana, includes many which are strictly prayers, or Mantras. The theology of the Indian scripture, comprehending the argumentative portion entitled Vedantas, is contained in the texts denominated Upanishads; some of which are portions of the Brahmana, properly so called: others are found only in a detached form; and one is a part of a Sanhita.

Prayers, employed at solemn rites, called Yajnya, have been placed in the three first Vedas: those in prose are named Yajush; such as are in metre are designated Rich; and some which are intended to be chanted are called Saman; and those names, as distinguishing different portions of the Vedas, are anterior to their separation in Vyasa's compilation. But the Atharvava, not being used at the religious ceremonies above-mentioned, and containing prayers employed at libations, at rites conciliating the deities, and as imprecations on enemies, is essentially different from the other Vedas. This is adduced by Mr. Colebrooke as the true reason why the three first Vedas are often mentioned without any notice of the fourth; which must be sought, he says, not in their different origin and antiquity, but in the difference of their use and purport. The fourth, or Atharvava, is known to contain many forms of imprecation for the destruction of enemies. These are called Mantra (see that article), but it must not be inferred that such is the chief subject of that Veda; for it contains also a great number of prayers for safety, and for the averting of calamities; and, like the other Vedas, numerous hymns to the gods, with prayers to be used at solemn rites and religious ceremonies, excepting, as above-mentioned, such as are named Yajnya.

Mr. Colebrooke gives a passage from that part of the second, distinguished by the title of the White Yajurveda, the other being called the Black, confirming his opinions as above indicated, and important, as containing an enumeration of the Vedas, and of the various sorts of passages which they comprise: "As smoke and various substancces separately issue from fire lighted with moist wood, so from this Great Being were respired the Rigveda, the Yajurveda, the Samaveda, and the Atharva and Angiras; the Itahafa and Purana; the sciences and Upanishads; the verfes and aphorisms; the expositions and illustrations: all these were breathed forth by Him."

The commentators remark, that four sorts of prayers (Mantra), and eight kinds of precepts (Brahmana), are here flated. The fourth description of prayers comprehends such as were revealed to, or discovered by Atharvan and Angiras, meaning the Atharvava Veda. The Itahafa designate such passages, in the second part of the Vedas, as narrate a story. The Purana intends those which relate to the creation, and similar topics. "Sciences" are meant of religious worship; "verses" are memorial lines; "aphorisms" are short sentences in a concise file; "expositions" interpret such sentences; and "illustrations" elucidate the meaning of the prayers.

The Puranas here meant are not the mythological poems bearing the same title; but, as already mentioned, certain passages interpolated throughout that part of the Vedas called Brahmana, or divine precepts. This distinction is important. Under our article PURANA a pretty full account of theo metric romances will be found.

The subjects and uses of the prayers contained in the Vedas, differ more than the deities which are invoked, or the titles by which they are addressed; every line is replete with allusions to mythology, and to the Indian notions of the divine nature and of celestial spirits. For the numerous ceremonies to be performed by a householder, and still more for those endless rites enjoined to hermits and ascetics, a choice of prayers is offered in every stage of the celebration. It may be here sufficient to observe, that Indra, or the firmament, fire, the sun, the moon, water, the spirits, the atmosphere, and the earth, are the objects most frequently addressed; and the various and repeated sacrifices with fire, and the drinking of the milky juice of the moon-plant, or acid acetabas (see SOMALATA), furnish abundant occasions for numerous prayers adapted to the many ilages of those religious rites.

In describing the Vedas so replete with mythological allusions, Mr. Colebrooke does not mean a mythology which avowedly exalts deified heroes, as in the Puranas; but one which personifies the elements and planets; and which peoples heaven, and the world below, with various orders of beings. He observed, however, in many places, the groundwork of legends which are familiar in mythological poems; such, for example, as the demon Vritra, slain by Indra, who is thence familiarized Vrithubh (which sec,) but he did not remark any thing, except some detached portions, the genuineness of which appeared doubtful, that correspond with the favourite legends of those feats which worship either the Linga or Sakti, or else Rama or Krihna. Such portions, he reasonably supposes to have been composed in more modern times, when compared with the other parts of the Vedas. This suspicion is chiefly grounded on the opinion, that the feats which now worship Rama and Krihna as incarnations of Vishnu, are comparatively new: he did not find in any other part of the Vedas the least trace of such a worship. The real doctrine of the whole Indian scripture is the Unity of the Deity, in whom the universe is comprehended; and the seeming polytheism which it exhibits, offer the elements, and stars, and planets as gods. The three principal manifestations of the Divinity, with other personified attributes and energies, and most of the other gods of Hindoo mythology, are indeed mentioned, or at least indicated, in the Vedas. But the worship of deified heroes is no part of that fyltem; nor are the incarnations of deities fuggeted in any other portion of the text which he had seen, though such are hinted at by the commentators.

On the point of unity in doctrine, incorrupt with great sublimity and purity, we may refer to some translations from the Vedas by Sir W. Jones, in the last volume of his Works.

After giving strong reason for believing the Vedas to be genuine compositions, in opposition to ferous allusions of their being forgeries, or grossly interpolated, Mr. Colebrooke avows his opinion, that the greater part of the books received by the learned among the Hindoo will assuredly be found genuine;
The idea of impurity arising from the chanting of the Samaveda, is not uniformly held. Mr. Colebrooke informs us, "that a peculiar degree of holiness seems to be attached, according to Indian notions, to the Samaveda, if reliance may be placed on the inference suggested by the etymology of its name, which is expounded as denoting something which defines, fun." And this inference, we may remark, is countenanced by the circumstance of Kritham, when enumerating, in the Bhagavat Gita, various orders of beings and things, to the chief of which he compares himself, declaring, that "among the Vedas, I am the Saman." It may be said, however, that this Veda more especially relating to music, over which Kritham, the Hindoo Apollo, presides, he may advert only to its harmonious pre-emience.

iv. 125. "Let the learned," Menu commands, "read the Veda on every lawful day, having first repeated in order the pure essence of the three Vedas, namely, the Pranava, the Vyahritis, and the Gayatri." Of these fee under O'M. xi. 262. "A priest who should retain in his memory the whole Rigveda, would be absolved from guilt, even if he had slain the inhabitants of the three worlds, and had eaten food from the foulest hands."

253. "By thrice repeating the Mantras and Brahmanas of the Rig, or those of the Vyahuth, or those of the Saman, with the Upanifhads, he shall perfectly be cleansed from every possible sin."

264. "As a cloud of earth, cast into a great lake, sinks into it, thus is every sinful act submerged in the triple Veda."

266. "The primary triliteral syllable, in which the three Vedas themselves are comprised, must be kept as secret as another triple Veda; he knows the Veda, who knows the mystic sense of that word." Of which fee under O'M.

In the above texts from Menu, we see the propriety of the Hindoos to bring every thing into a ternary arrangement. The three Vedas, and the triple Veda, are ever recurring. In a hymn by Sir W. Jones to the Sun, or rather to its ruler, Surya, he says,

"Nor o'en the Vedas three to man explain
Thy mystic orb triform, though Brahma tun'd the Brain."

See SURYA. See also TRIBURTI for many instances of this disposition for triune classification.

The philosophical writers and their disciples, who profess to adhere closely to the doctrines of the Veda, are called Vedanta; which fee.

On the age of the Vedas, we have to observe, that Sir W. Jones (Af. Ref. vol. i.) rejects their claim to the very high antiquity that some warm advocates were disposed to ascribe to them; he could never believe that they were actually written before the flood; but ventures to affort, that they are far older than any other Sanscrit composition. And in IV. 11, he says, that he "firmly believes, from internal and external evidences, that three of the Vedas are more than three thousand years old." And in vol. iii. that they appear to stand next in antiquity to the five books of Moses.

In the preface to the Institutes of Menu, the learned translator deems the three first Vedas to have been composed about three hundred years before the Institutes, and about six hundred before the Puranas, which he is fully persuaded were not the production of Vyafa. The Institutes he supposes to have received their present form about 880 years before Christ's birth. By one mode of reckoning, the highest age of the Yajurveda is carried to 1583 years before the birth of our Saviour, which would make it older than the Pentateuch; and the Institutes must then be alligned to about 1280 years before the same epoch: but Sir W. Jones deemed the former date of 880 years B.C.
B.C. for the Institutes the more probable. This would give the Yajurveda an age, in 1815, of about 2995 years. Mr. Colebrooke (Al. Ref. vol. vii.) infers, from several data there given, the probability that the Vedas were not arranged in their present form earlier than the 14th century before the Christian era; but cautiously marks the inference as vague and conjectural: about 3200 would hence be assumed as the maximum of elapsd years since the present arrangement of the Vedas. And deducing, by Sir William Jones's method, the comparative age of the Puranas, they will be 2500 or 2600 years old at most; and the Institutes 2800. See Purana and Menu.

As to the relative age of the different Vedas, some differences of opinion will have been seen to exist. We shall only remark farther, that Mr. Wilkins, in the preface to the Gita, observes, that Krihna throughout the whole makes mention of three Vedas only; and those, the three first in their present order; the fourth, proving itself a posterior work, mentions him. On this being noticed to some Pandits who affixed to the translation, they expressed great astonishment at it, as it had escaped all the numerous commentators on the Gita. It may be remarked, in passing, that Menu is often mentioned in the Veda, and the Veda by Menu; a proof of interpolation somewhere.

It is evident that the Vedas are anterior to the hereof or reformation of Buddha; one of his leading innovations being the condemnation of the practice of killing and eating animals, as enjoined in the Veda, and by Menu. See Sects of Hindoes, and Sraeda.

So holy are the Vedas esteemed by the Brahmanes, that no individual of the fourth, or servile tribe of Sudra, is permitted to read them. In this interdiction are included several other divine works. Both the poems entitled “Mahabarat” and “Ramayana,” are likewise esteemed to contain passages and descriptions too awful for the eye of a Sudra: he may bear them read by a Brahman, who is likely to be careful as to what he communicates. Of this see under Mahabarat, Ramayana, Sects of Hindoes, Sura, and Vaidya.

The Yajurveda is declared by Menu, in a text quoted above, “to relate to mankind.” It is, as already noticed, ascribed to a celestial physician: it contains an entire Upanishad on the internal parts of the human body; with an enumeration of nerves, veins, and arteries, a description of the heart, spleen, and liver, and various disquisitions on the formation and growth of the fetus. From this, and from many texts of Menu, we may perceive that the ancient Hindoes were fond of reasoning, in their way, on the mysteries of animal generation; and on the comparative influence of the sexes in the production of perfect offspring. The physiological disputes on this latter point exacerbated, by mystical warmth, appear to have led to violent schisms in religion, and even to bloody wars. See Saraswati and Yoni.

There can be little doubt but the learned world would thankfully receive a faithful uninterpolated translation of such portions of the Vedas as tend to throw light on the state of knowledge among a people who so early engaged in such disquisitions as are contained in the Yajurveda, above indicated. These would, doubtles, be valuable, and are, indeed, necessary to complete the history of universal philosophy, and to supply the scholars of Europe with authentic materials for an account of the opinions anciently formed on this head by the philosophers of Asia. We will not say how far the Atharvane Veda may defer the honour of translation. It contains a most complete system of incantations and magical devices; and would be so far curious, as to evince that, both in antiquity and ingenuity, the demagogues of Europe are vastly outtripped by their fapiest brethren of the East.

We are not able to state the exact size or extent of the Hindoe scripture, or Veda. The following is as near an estimate as can be made.

The first, or Rig-Veda, contains about 10,000 verses, or rather flanzas, of various meausures. The second, or Yajur-Veda, is divided into two; the white and the black: together, they include about 9000 verses. The third, or Sama-Veda, about 3000. The fourth, or Atharva-Veda, about 6000. Of gloffes, or commentaries, it is not easy to form any but a vague estimate: but we are, we think, warranted in the opinion, that, supposing the whole could be collected and printed in the manner of our dictionary, they would form a work larger than this!

In all Hindoe writings connected in the leaf with theology, and, indeed, in many others, extracts from, and allusions to, the Veda, frequently occur. Several articles in this work contain such, and are farther explanatory of the contents of these revered volumes. Thofe, therefore, deprived of more information hereon, are referred to the following: Idolatry, Krishna, Matsyavatara, Saraswati, (in which is an extract of some length descriptive of the powers or energies of that goddef,) Shastah, Suttee, Sects of Hindoes, Sitaanta, Sraeda, Sura, Surya, Trimurti, Upanishad.

Veda is the correct way of writing the title of the Hindoe scripture collectively. In different parts of India it is variously pronounced; and it is variously spelt by European writers. Vadem and Bedam are occasionally seen: these are the modes of pronunciation in the Carnatic. Among the Mahattas, Bede, or Bhade, is not uncommon; and its reputed compiler is called Beafa, and Beafs Muni. (See Muni.) The Bengal alphabet having no v, Bed or Beda is the usual pronunciation in that quarter.

VEDAM, a name sometimes given to the Veda; which fece.

VEDANGA, in Hindoe Mythology, a name of the fun, more commonly called Surya; which fece. The name of Vedanga seldom occurs, as the fun; but it is applied to certain portions of books of divine knowledge, as they call them, derived from the Vedas. Of this see under our article Veda.

VEDANTA, in Philosophy, a fact among the Hindoes, so named from their theory being professedly founded on the doctrines contained in the Veda, or scripture, in a degree exceeding that of any other of the philosophical schools or eylms. (See Ved.) The fundamental tenet of this school consists, not in denying the exifence of matter, but in correcting the popular notion of it; and in contending that it has no exifence independent of mental perception; that existence and perceptibility are convertible terms; that external appearances and favations are illufory, and would vanish into nothing, if the divine energy, which alone sustains them, were suspended but for a moment. This opinion seems to have been adopted by Epicarchus and Plato, and was maintained in the last century by a writer of our own nation. The founder of this school is named Vyasa (which fece), and his theory is comprifed in a little treatife in four chapters. An attempt has been made to elucidate the obscurity of this writer by the judicious and learned Sankara, in his commentary on the Vedanta. (See some account of him under the article Sankara-Charita.) His chief work is entitled "Bafnea," Sir W. Jones, after reading this commentary with great at-
VEDANTA.

From a statement of the fundamental doctrine maintained by the disciples of the Vedanta school, it has been inferred that their philosophy is founded on the contemplation of one infinite Being, existing under two states or modifications. The first is that of a pure, simple, abstract Essence, immoveable and quiescent; the second is that of a Being displaying motion or active qualities. Under the first modification he is called Bruma, or the Great Being, and Kutatha, or He who fitteth on high; under the second, he is named Eet, the Lord, or Jee, the Soul: or we may say, that Bruma is Being in its state of simple essence; Eet is Being exerting energy, and causing the phenomena of the material universe; Kutatha is Being existing in sensitive creatures in its pure simple state: and Jee is Being in a sentient active state.

It is rare to find in Vedanta works any attempt to establish its doctrines by any process of reasoning. The authors announce the principles of their faith in a dogmatical authoritative style, as indubitable truths; or establish their affirmations by the authority of the sacred texts alone, and attribute disbelief to passion and ignorance. Sometimes, indeed, we do perceive an appearance of reasoning and argument, in support of the denial of a material world.

It will be perceived by those who investigate the Vedanta philosophy, that it does not correspond closely either with the Berkeleian, or with any other system, known in the western world. (See BERKELEY.) It does not teach that the Supreme Being is the soul of the universe, as was taught by Virgil (see MAYA); that animate beings are separate detached portions of his essence, or that the visible extended material frame of things is God; but it affirms that the world is one living, unextended, indivisible Being, who puts forth his energy, and excites in himself the phenomena of sensible things, as well as of sensation, passion, &c. In explaining this system, however, the writers frequently make use of such figures as may mislead one who reads only detached passages of Vedanta works, without examining closely the nature of their doctrines. Hence the Vedantas have been supposed to teach the doctrine of emanations; and it must be admitted that passages occur, even in the Vedas, apparently countenancing this supposition. (See MAYA.)

In the fourth or Atharva Veda it is said, 'as the sparks proceed from fire, so various kinds of animate and inanimate beings proceed from the incorruptible Being.' But the best commentators say, that these expressions do not mean that these are separate individual beings, but only whatever is beheld or perceived is the Divine Essence. The Vedanta opinions cannot be represented by any figure: they must be deduced from plain and simple declarations.

The Vedanta philosophy will be found to correspond with the Berkeleian in this important particular: both deny a material world, referring sensible things to the energy of a living Being. But the analogy appears to extend no farther. In another important particular they are strongly opposed: in maintaining and denying the existence of separate beings, upon whom this energy operates, existing in their minds the ideas of external things. (See MIND.)

There is no subject under our articles MYSTICAL POETRY, and SEEN.

Having offered this sketch of the Vedanta theory, the practical maxims of this very extended sect will be readily understood. They teach that perfection consists in redress that motion or action is the origin of the moral directions of good and evil, both of which must be renounced, as they involve and imply each other. To the attainment of this sublime state, it is required that the active faculties be sublimated, and the passions and affections subdued; that the individual be totally indifferent to external things, animate and inanimate, to parents, wives, children, relations, goods, 

Vol. XXXVI.
VEDA, Cape, in Geography, a cape of Spain, on the coast of Galicia. N. lat. 42° 19'. W. long. 8° 51'.
VEDRO, or VEEDRA, in Commerce, a liquid measure in Russia. The calk, farokowoi, or pipe of wine, contains 40 vedros; the vedro, 8 ofmucli or krulhka; and the krulhka, 11 ticharkays or cups. The vedro in Peterburg contains 621 French, or 752 English cubic inches; hence 1 vedro = 3⁄4 English wine gallons, and 3 krulhkas = 1 English ale gallon. Kelly’s Un. Camb.
VEER, in Geography. See Veercha.
VEER, in Sea Language, is variously used. *Veering out* the rope, denotes the letting it go by hand, or letting it run out of itself; thus, they say, *Veer more cable*; that is, let more run out.

VEDA, a river of Britain, the mouth of which is placed by Ptolemy on the south-east side, bounded by the German ocean. Horley differs in opinion concerning this river from Camden and Baxter; he supposes it to be the river Tyne, and they conjecture it to be the Were.

or to whatever causes pleasure, pain, &c. This furnishes a reason why, in some Vedanta works, language very dif-
dependent to the general rule and usage of the Hindoos. When the practice of rigid austerity, retirement from the world, and contemplation, this quiescent state is attained, the soul perceives that it is Being, and that Being is all things; and thus the soul becomes the one Infinite Essence. Some branches of this rigid austerity and contemplation are called *Tapas* and *Yoga*. (See under those words for some account of these practices; and under *Sects of Hindoos*, and Yoga, of those who practise them.) *Action*, say the Vedantis, or religious performances, do not conduct the soul to the state of the Eternal but to *Swarga* (which fee), where it continues, until the holiness it hath accumulated be nearly expended by the enjoyment of happiness; when it returns to earth, and takes a body corresponding to its remnant of virtue. Agreeably to this notion, action is condemned, as it tends to retain the soul in the prison of passion and affection. Still, while a person continues to perform the common acts of life, it is incumbent on him to attend to religious duties and rites.

It has been found expedient farther to modify the doctrine, in such a manner as to reconcile it with the ordinary avocations of life, on which depend the existence of society. Accordingly it is held, that the renunciation of the world does not require that a per son cease or depart from those avocations; but only that he preserve his mind in a state of perfect indifference and tranquility. "If it be alleged that the Puranas declare, that Bharata and others did not perform the acts of life; we would ask," says the Panchdhati, "why do you not listen to the Vedas, which declare that wise men eat, act, and procreate?"

It will be necessary to keep in mind that the Vedanta is a philosophical, not a religious system; and that a profession of its tenets is compatible with all the religious sects who admit the authority of the Veda. This may be said likewise of the Sankya, Nyayai, and other philosophical systems. The religious distinctions of the Hindoos result from the peculiar or exclusive veneration paid to a particular deity; and the adoption, as a spiritual guide, of those books which celebrate that deity as the great Being. On this point the reader may consult our articles *Krishna*, *Krishna*, *Saraswati*, *Saraswati*, *Sects of Hindoos*, *Sarawati*, *Sects of Hindoos, Sankya*, Siva, and others therein referred to, connected herewith.

VEDESKAI, in Geography, a town of Russia, in the government of Irkutsk, on the Irkut; 34 miles W. of Irkutsk.
VEDESKOI, a town of Russia, in the government of Vologda, on the Vida; 66 miles E.S.E. of Vielk.—Alfo, a town of Russia, in the government of Archangel, on the Volchka; 200 miles E.S.E. of Archangel. N. lat. 58° 45'. E. long. 46° 44'.—Alfo, a town of Russia, in the government of Tobolisk; 36 miles S.E. of Tomsk.

VEDETTE, in the Military Art, a sentinel on horse-"back, detached from the main body of the army, to discover and give notice of the enemy’s dispositions.
VEDIANTII, according to the orthography of Plynw, written Pyschatii by Ptolemy, in Ancient Geography, the name of a people, whose capital was *Camelion* (Plynw), or Cenemilum (Ptolemy), situated in the province of the Maritime Alps, according to the Notitia of the provinces of Gaul.
VEDRA, a river of Britain, the mouth of which is placed by Ptolemy on the south-east side, bounded by the German ocean. Horley differs in opinion concerning this river from Camden and Baxter: he supposes it to be the river Tyne, and they conjecture it to be the Were.

When
When it becomes necessary to veer the ship, the sails to- 
wards the stern are either furled or brailed up, and made to 
shiver in the wind; whilst those near the head are spread 
abroad, so as to collect the whole current of air which their 
surfaces can contain. Hence, while the whole force of the 
wind is exerted in the fore-part of the ship to turn her 
about, its effect is considerably diminished, or altogether 
destroyed, on the surfaces of the after-fails. The fore-part, 
accordingly, yields to the above impulsion, and is put in 
motion; and this movement, conjuring with that of the 
wind, puffes the ship about as much as is necessary to pro- 
duce the effect required. When she is turned so that the 
wind will act upon that quarter, which was formerly to 
leeward, her circular motion will be accelerated by extend- 
ing some of the sails near the stern, as the mizen, and by 
placing those at the prow more obliquely, which will wheel 
the vessel round with her bow to the windward; in the 
same situation, with regard to the wind, as when close- 
hauled, or tacking. When the tempest is so violent as to 
prevent the use of sails, the effort of the wind operates 
almost equally on the opposite ends of the ship, so that the 
main and mizen masts are furled at the head and stern—counter 
balance each other. The effect of the helm is also consider- 
bly diminished, because the head-way, which gives vigour 
to its operations, is at this time feeble and ineffectual. 
Hence it is necessary to destroy this equilibrium which sub- 
stitutes between the masts and yards aore and abaft, and to 
throw the balance forward, in order for veering. This is 
accordingly performed by bracing the foremost yards across 
the direction of the wind, and arranging those on the main- 
mast and mizen-mast directly in the line of the wind. If 
this expedient proves unsuccessful, and it is absolutely ne- 
cessary to veer, in order to save the ship from destruction, 
by overfetting or running ashore, the mizen-mast must be 
instantly cut away, and even the main-mast, if the yet re- 
 mains incapable of answering the helm by bearing away 
between the wind. Falconer.
V E R I N G, in H e f f a n d r y, a term borrowed of the sailors, 
and used for the turning of two furrows towards each other, 
as they must do to begin a ridge; they therefore call 
the top of a ridge a veering; and they call the two furrows 
that are turned from each other at the bottom between two 
ridges, a hening; that is, an ending, because it makes an end 
of plowing ridges.
V E E R S E, in Geography, a town of Germany, in the 
county of Verden; 10 miles E.N.E. of Rotenburg.
V E G A, L o p e z de L a, or L o p e - F e l i x de V e g a- 
Carpio, in Biography, a celebrated and voluminous Spanish 
poet, was born of a noble family at Madrid, in the year 
1562. Having been educated in the university of Alcala, 
he occupered several honourable posts, and served on board 
the grand armada defined against England. After the 
death of his second wife, he took holy orders at Toledo, 
and obtained admittance into the congregation of priests at 
Madrid; acting as precentor, and being himself one of the 
third order of Franciscans. By favour of pope 
Urban VIII. he was honoured with the insignia of the 
knight's of Malta, and with the title of doctor of theology. 
He died in 1655, at the age of 73. He was eminently dis- 
tinguished as a poet, and regarded as the father of the 
Spanish drama, excelling, as some have asserted, all poets, 
auxient and modern, in this kind of composition. His 
"Theatre" occupies twenty-five volumes, each of which 
takes twenty plays of various descriptions. One of his 
biographers fays of him, that "the innudation of Vega's 
fancy leems to have been no more than a deluge of very 
orinary matter, in which there is little to be praied but 
an easy eloquence of language, and a faculty of dramatizing, 
after a manner, stories of every kind. Three hundred 
pieces could not possibly have been composed otherwise. 
Nor was this the principal portion of his literary labour; 
for he has himself affirmed, that upon a calculation it would 
appear, that he wrote five leaves of MS. for every day of 
his life." The high degree of admiration he inspired in 
his own country appeared from the numerous eulogies of 
which he was the subject after his death. Moren. Gen. 
Biog.
V E G A, in Geography, a town of Spain, near the N. coast 
of Althuras; 34 miles N.W. of Oviedo.
V E G A, Lo, a town of the island of Hifpaniola; 24 
miles S.E. of St. Jago de los Cavalleres.—Alfo, a town of 
the island of Hifpaniola; 62 miles N. of St. Domingo— 
Alfo, a town of Spain, in the province of Leon; 46 miles 
W.N.W. of Aftorga.—Alfo, a town of Spain, in the pro- 
vince of Leon; 18 miles N.E. of Leon.
V E G A M A N, a town of Spain, in the province of Leon; 
24 miles N.E. of Leon.
V E G E N O E, a small island in the North sea, near 
the coast of Norway. N. lat. 45° 45'.
V E G E S E L A, in Ancient Geography, a town of Africa, 
in Numidia, upon the route from Thylette to Sitifis, be- 
tween Mascula and Timphidas, according to the Itinerary 
of Antonine.—Alfo, a town of Africa, in the Byfacentz terri- 
itory, on the route from Thynz to Thylette, between 
V E G E T A B L E S, in Agriculture and Gardening, are all 
such plants as are found capable of affording useful products 
as food for man, and different sorts of live-flock. They 
are constituted and composed of soft and fleshly and solid parts, 
the latter of which are formed and arranged in such a 
manner as to afford proper firmness and support in their 
different growths; and from which proceed those which 
are often considered as, in some measure, distinct and different 
in their nature and uses, as the roots, the stems, the leaves, 
the flowers, the fruits, the seeds, and some others.
The first of these, which differ greatly in different sorts of 
gecetables, are the parts which connect them with the 
earth or foil, and the main source of their nourishment and 
support. They are, in all cases, more or less fibrous in 
some of their parts; and the more perfectly this takes 
place, the more capable are they of drawing nourishment 
from the ground on which they grow. It is, consequently, 
the fibrous radicles and the leaves that constitute the media 
through which the growth and increase of vegetables are 
effectecl. The fixing of these parts in the earth, too, by 
the ramifications which they send forth, prevents the vege-
tables from being overturned by winds and other causes. 
The form or shape and uses of these parts in different kinds 
of vegetables differ very materially; having in some cases 
a branching lateral growth, in others a knobby, and some- 
times that which is directly downward, in some infaces 
is fleshly and edible, and in others woody or ficky, and of no 
value.
They are very similar in the nature of the different divi- 
sions of their parts to the stem or trunk and branches; and 
may, indeed, be said to be a sort of continuation of the 
former, terminating in minute ramifications and filaments, 
and in leaves; and by burying the branches of certain 
trees, as the willow, in the earth or foil, as practised by 
Woodward, and since repeated by many others, and elev- 
ating the roots in the atmosphere, there is, as it were, an 
involution of the functions of them, the roots producing and 
becoming buds and leaves, and the branches shooting 
forth into radical fibres and tubes, and forming roots. See 
Root.
The second of these parts are those which stand next in importance in vegetables, when considered merely as fuel, and which include the branches as well as all the solid parts of them, conmilting principally of different coasts, as bark, flesh or wood, according to the nature of the vegetable, and pitch, or the middle part. These coats or coverings are differently formed, modified, and constituted, so as to be of different uses in their economy. The part, or layer, which is placed next to the wood, is composed, in vegetables of the tree kind, of a soft white subflance, not easily discernible in some fruits of trees, but harder and more apparent in others. It is, as it were, an imperfect wood, or in the state between bark and wood. The wood is the compact, fibrous, hard part or subflance which is disposed in the middle of trees, which in annual and biennial vegetables is called the flesh, as has been seen already. Between the above coat and the wood, a new ring of a softer nature is formed every year, which gradually loses its softness as the cold season advances, and which towards the middle of winter is converted into a solid ring of wood. These annual rings, which are visible in most trees, are produced through transversely, serve as marks by which to determine their ages in some cases. They seem to decrease in breadth as the trees advance in age; and as they are found to be very unequal throughout in their dimensions, their breadth probably varies as the season may be favourable or otherwise. The wood, however, does not only differ from the coats or bark in the degree of hardness, but likewise in its structure, which is essentially different; and the seeming conversion of bark into wood, is imagined by some to be entirely a deception.

Thus, if the branch, item, or the root of a tree be cut in a transverse manner, it usually displays three distinct bodies or parts; the bark, the wood, and the pitch; each of which is again susceptible of a new division. The bark, where perfectly formed, has a thin covering, that may easily be separated; it is in laminae or scales, which, in old trees, are moily in a loose and decaying state. It is not vascular, but merely defends the interior parts from injuries. It is supposed to be a part of little importance in forest-trees, and the larger shrubs, the bodies of which are very firm, and of strong texture; but in the reeds, the rush, sedge, and the plants which have hollow stalks, it is of great use, as it is of very great strength, and appears constituted of a sort of glabby net-work, which is chiefly siliaceous earth, as has been lately ascertained. This is the case in wheat, in the oat, and in different other plants; in some of which it exists in large quantities, and is general in this part of those of the hollow kind. It is serviceable as a support as well as protection from insects in such cases.

The most interior part of the bark is composed of layers, the numbers of which vary with the age of the tree; so that on cutting this part of a tree of several years standing, the productions of different periods may be distinctly seen, though the layer of every particular year can rarely be exactly defined or ascertained. The functions of the different parts of the bark are of great importance to vegetables.

In regard to the wood in trees, it is composed of an external or living part, called fap-wood, and of an internal or dead part, termed heart-wood; the former of which is white, and full of moisture, and in young trees and annual plants, reaches even to the pith. It is the great vascular system of the vegetable through which the sap-juice rives, the vessels in it extending from the leaves to the most minute filaments in the roots. Its structure has different important uses in producing new arrangements and forming new wood.

In respect to the arrangement of the fibres of the wood, there are two distinct appearances in them: as the fibres of white flowering onions, which is in the Smyrna, to the circumference, and which constitute what is termed the fibre grain of the wood; and the numerous series of concentric layers, which are commonly denominated the spongy grain, the number of which denotes the age of the tree, as already suggested. The former has many important functions, and is the most distinct in forest-trees; though annual shrubs have even a fyltem of fibres similar to it. See Tim-ber, Sap, and Alburnum.

The item parts of some vegetables are quite hollow; partly, it is supposed, from such vegetables requiring a more than ordinary supply of air in their support, as they are generally those which are of a quick growth.

The pitch is the soft, white, innermost subflance of vegetables of the tree and other kinds, that is situated in the centres of the items.

In the very infancy of the vegetable it occupies but a small space, but gradually dilates; and in shoots of the annual kind, and in young trees, offers a considerable diameter. Being acted on by the heart-wood, as predisposed by the new layers of the fap-wood, in the more advanced age of the tree, it begins to diminish, and in very old forest-trees wholly disappears. As it has lately been wholly removed in different young trees, which continued to live and increase; it is evidently only an organ of secondary importance. In early shoots, in vigorous growth, it is filled with moisture, and is a reefer of fluid nourishment, perhaps, at the time when it is most wanted. As the heart-wood forms, it is more and more separated from the living part, the fap-wood; its functions become extinct, it diminishes, dies, and ultimately disappears. See Stalk and Trunk.

The third, or the leaves, are parts which are essential to the existence of vegetables; as when, either of the plant or tree kind, wholly divested, or only stinted of a considerable part of them, they do not shoot in a vigorous manner. They are produced from the coats of the stalks or stems, and are of the soft fleshy thick kind, or the more thin, barkty, or woody fort. They are capable of affording nourishment, and are maintained by the nutrient fluid matters which they hold in reserve in their soft subflances, and by the dew, air, and moisture, which they take in and throw off.

In all cases the leaves are similar in their interior organization, and perform the same functions as the above parts, only their structure is finer and more minute. The fap-wood spreads and extends itself from the footstalks into the very extremities of the leaves; it preserves a vascular fyltem, and its living powers; some parts of the former of which may be distinctly seen in the leaf. A material use of the leaves is, the exposure of the sap to the influence of the air, heat, and light; for which their surface is extensive, the tubes and cells very delicate, and their texture porous and transparent. In the leaves, much of the water of the sap is evaporated; it is combined with new principles, and fitted for its organizing functions, and probably passes, in its prepared state, from the extreme tubes of the fap-wood into the ramifications of the cortical tubes, and then descends through the bark. On the upper surface of leaves, which is exposed to the sun, the external covering is thick but transparent, and is said to be composed of matter polished of little organization, which is either principally earthy, or consists of some subflance of the homogeneous chemical kind. That in the grases it is partly siliaceous, in the leafy ruminous, and in the thorn and maple principally constituted by a subflance analogous to wax.
By these arrangements, any evaporation, except from the appropriate tubes, is, it is thought, prevented. On the lower surface of them, the external coat is a thin transparent membrane full of cavities; and it is probably altogether by this surface, it is said, that moisture and the principles of the atmosphere necessary to vegetation are absorbed or taken up. The leaves in the greater number of plants annually decay, and are reproduced; their decay takes place either at the close of the summer, as in very hot climates, when they are no longer supplied with sap, or on account of the dryness of the soil, and the evaporating powers of heat; or in the autumn, as in the northern climates at the commencement of the frosts. In common cases, the leaves prefer their functions no longer than there is a circulation of fluids through them. The colour assumed in the decay of the leaf, seem, it is said, to depend upon the nature of the chemical change; and that as acids are generally developed, it is usually either reddish-brown or yellow; yet there are great varieties. Thus, in the oak it is a bright-brown; in the beech, orange; in the elm, yellow; in the vine, red; in the fycamore, dark-brown; in the cornel-tree, purple; and in the woodbine, blue. The cause of the preservation of the leaves of evergreens during the winter is not well known. It is found that the force of the leaves is much less in vegetables of this sort, and there is probably a certain degree of circulation throughout the winter season; their juices are less watery than those of other plants, and probably less liable to be congealed by cold, and they are defended by stronger coatings from the action of the elements. The production of the other parts of the plant may be noticed to take place at the time the leaves are most vigorously performing their functions. If the leaves of a tree be stripped off from it in the spring, it uniformly dies; and when many of those of forest-trees are injured by blasts, the trees are daylight always to become flag-headed and unhealthy in their growth.

The leaves, it is said, are necessary for the existence of the individual tree; the flowers, noticed below, for the continuance of the species. In the flowers there are several different organs or parts, the forms, vavceral nature, texture, and organization of which serve different important uses and functions. That which contains the rudiments of the seed has it never formed as reproductive, without the aid of the influence of the pollen, or fecundating dust provided for the purpose. This proper impregnation is, of course, necessary to the continued succession of the different vegetable tribes. It has been noticed, that all the parts of a vegetable seem to contribute to the formation of the flowers and fruits of plants; as, although the latter do not swell and ripen until after the former have fallen, their rudiments or first beginnings are in the flowers, of which they properly make a part. These last are consequently temporary parts of vegetables, allotted to the purposes of generation, terminating, as it were, the old vegetables, and beginning the new ones. Fruits consist of nearly the same parts as the items of vegetables, as a fort of soil or fine coat, which is a production or continuation of that of the bark of an outer soft pulpy fibulation, and is the same as that continued from the bark, only that its vehicles or cells are larger, and it is more succulent and juicy. There is commonly an inner pulp, which is next to the stone and the core itself is nothing more than a hard woody covering, that includes the feed. It is to be noticed, however, that the formation of the fruit is very various: in some cases, the seeds are dispersed through the pulpy fibulation; in some, instead of a core, a strong woody material is met with, inclosing the seed or kernel, which, from its great hardhefs, is termed a stone; in some, there is a number of seeds; and in others, only a single seed, included in a large mass of pulpy matter. See Fruit.

The seeds are the deciduous parts of vegetables, each seed including the rudiment of a new plant, imbued with the vital principle, which it is capable of retaining for a vast length of time. A seed consists of different parts, as that which is necessary to the production of the new plant or vegetable within the seed, termed the corcule; which is divided and disfigured into the fealy ascending part, named the plume, and the plain descending part, called the rofel; with different others of less importance, some of which are perishable. It has been commonly supposéd, and not without probability, that the perfect plant, or the organization necessary to it, exists in the seed, surrounded by a quantity of farinaceous matter, which serves to absorb moisture, and to furnish nourishment to the corcule, until its parts are sufficiently unfolded to draw support from the soil in which it is placed. This is finely illustrated in the dwarf kidney bean, which, when steeped some time in water, and it begins to swell, may be easily separated into its two lobes, between which is seen the nascent plant or vegetable. The stem, and its connection with the lobes, too, are clearly seen, and numberless vealls ramify through the lobes, which directly communicate with the embryo plant or vegetable. And on the external surface of the seed are absorbent vealls, that take up moisure, by which a sort of fermentation is produced, and a liquid material formed, elaborated and prepared by a particular process, which is proper for the nourishment and support of the plant or vegetable, in its first tender growth. In this early growth, the lobes of the seed, which are provided with a mealy material, are likewise found necessary. And the first leaves, or those which are called feminal, are thought to appear not less necessary than the lobes to the perfection of the plant or vegetable; as, if they happen to be broken off or destroyed, the plant or vegetable experiences a proportional loss of strength and vigour in its growth.

There is, therefore, to be distinguished in every feed an organ of nourishment, a nascent plant, and a nascent root. The first of these, in wheat and many grasses, is a single part; in other instances, it consists of more than two parts; but in the greater number, it is simply divided into two parts.

The feed, which is the last production of vigorous vegetation, is wonderfully diversified in form. That being of the highest importance to the organs of nature, it is described above all other parts of the plant, it is said, by felt pulpy fibulations, in the esculent fruits; by thick membranes, in the leguminous vegetables; and by hard shells, or thick external coverings, in the palms and grasses. Though the matter of the seed, in its common state, may appear wholly inert and inactive; when acted upon by moisture, heat, and air, it soon distinctly develops itself, and becomes a complete plant in root and stem.

The above observations have been chiefly taken from the works of Hooper and Davy, to which the reader may be referred. See Seed.

As vegetables are supplied with proper vealls, those of the absorbent kind on the surfaces of them take up the nutritious fluid or material, and convey it to the different parts. The surface of a plant has two sets of absorbents, as already seen, which constitute the absorbent organ of vegetables; as the mouths of the vealls of the radicles of the roots, and those on the surfaces of the leaves. The root, as long as it remains soft and tender, imbibles and takes up the nutritious juices from the earth, by means of the absorbent mouths of its vealls; but as soon as it be-
comes ligneous, it emits radicles on every side, which continue the absorption, and convey the matters first to the root, and then to the whole plant or vegetable. Thus, if a plant or tree be transplanted, it succeeds with greater certainty, the more absorvent radicles are preferred with the root. The leaves absorb matters from the surrounding atmosphere, in the same manner as the radicles do from the earth, and convey them to the other parts of the plant or vegetable. It is suppos'd that, by means of the absorbents, water is distributed to every part of the plant or vegetable, and constricts its principal aliment; as, deprived of this universal fluid, it droops and dies; but, by its influence, is not only nourished, and the vacuolar parts of the whole fabric dilated, but it contributes greatly to excite the languishing fibres, and in this way to increafe the vital power of the vessels. By means of this sytem of vessels, too, the atmofoherial air, which is effential to the growth of vegetables, is absorb'd or taken up; as plants in vacuo cannot be evolved from the feed, nor can they afterwards vegetate. This is most probably the reafon why feeds, buried very deep in the earth, do not vegetate, but die. See Sap and Vegetation.

There are many matters or principles in different kinds of vegetables, which render them particularly useful in the way of food, or beneficial in the products which they afford. The starchy and saccharine principles are particularly important, as poiffing the qualities of fattening animals in a high degree. See Starch, Saccharine Matter, and Vegetable Matter.

The bitter principle prevails very extensively in vegetables, and the natural fort of it is of great importance and utility in the art of brewing, as checking fermentation, and preferring fermented liquors, &c. And there are many other principles in them, which contribute to different useful purposes in several ways. See Oil, Volatile Oil, Wax, &c.

The particular nature and properties of the few different principles of parts of vegetables may be seen explained in Davy's Elements of Agricultural Chemistry.

The quantities or proportions of nutritive or soluble matters, which are contained in different vegetables, or substances of that kind, are very different, as fhewn in the table given below from the above work, which comprehends the quantities of this fort of matters which are afforded by a thousand parts of different vegetable substances, when submitted to experiment, green, and in their natural states.

<table>
<thead>
<tr>
<th>Vegetables or Vegetable Substances</th>
<th>Whole Quantity of nutritive or soluble Matter</th>
<th>Mucilage or Starch.</th>
<th>Saccharine Matter or Sugar.</th>
<th>Gluten or Albumen.</th>
<th>Extract or Matter rendered insoluble during Evaporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middlesex wheat, average crop</td>
<td>955</td>
<td>765</td>
<td>0</td>
<td>190</td>
<td>0</td>
</tr>
<tr>
<td>Spring wheat</td>
<td>940</td>
<td>700</td>
<td>0</td>
<td>240</td>
<td>0</td>
</tr>
<tr>
<td>Mildewed wheat of 1806</td>
<td>220</td>
<td>178</td>
<td>0</td>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>Blighted wheat of 1804</td>
<td>650</td>
<td>520</td>
<td>0</td>
<td>130</td>
<td>0</td>
</tr>
<tr>
<td>Thick-skinned Sicilian wheat of 1810</td>
<td>955</td>
<td>725</td>
<td>0</td>
<td>230</td>
<td>0</td>
</tr>
<tr>
<td>Thin-skinned Sicilian wheat of 1810</td>
<td>961</td>
<td>722</td>
<td>0</td>
<td>239</td>
<td>0</td>
</tr>
<tr>
<td>Wheat from Poland</td>
<td>950</td>
<td>750</td>
<td>0</td>
<td>200</td>
<td>0</td>
</tr>
<tr>
<td>North American wheat</td>
<td>955</td>
<td>730</td>
<td>0</td>
<td>225</td>
<td>0</td>
</tr>
<tr>
<td>Norfolk barley</td>
<td>920</td>
<td>790</td>
<td>70</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>Oats from Scotland</td>
<td>743</td>
<td>641</td>
<td>15</td>
<td>87</td>
<td>0</td>
</tr>
<tr>
<td>Rye from Yorkshire</td>
<td>792</td>
<td>645</td>
<td>38</td>
<td>109</td>
<td>0</td>
</tr>
<tr>
<td>Common bean</td>
<td>570</td>
<td>426</td>
<td>0</td>
<td>103</td>
<td>41</td>
</tr>
<tr>
<td>Dry peas</td>
<td>574</td>
<td>501</td>
<td>22</td>
<td>35</td>
<td>16</td>
</tr>
<tr>
<td>Potatoes</td>
<td>260 to 200</td>
<td>200 to 155</td>
<td>20 to 15</td>
<td>40 to 30</td>
<td>0</td>
</tr>
<tr>
<td>Linseed-cake</td>
<td>151</td>
<td>123</td>
<td>11</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Red beet</td>
<td>148</td>
<td>14</td>
<td>121</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>White beet</td>
<td>136</td>
<td>13</td>
<td>119</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Paraffin</td>
<td>99</td>
<td>9</td>
<td>90</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Carrots</td>
<td>98</td>
<td>3</td>
<td>95</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Common turnips</td>
<td>42</td>
<td>7</td>
<td>34</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Swedifh turnips</td>
<td>64</td>
<td>9</td>
<td>51</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Cabbage</td>
<td>73</td>
<td>41</td>
<td>24</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Broad and long-rooted clover</td>
<td>39</td>
<td>31.30</td>
<td>3.4</td>
<td>2.3</td>
<td>3.2</td>
</tr>
<tr>
<td>White clover</td>
<td>32</td>
<td>29</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Sainfoin</td>
<td>39</td>
<td>18</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Lucern</td>
<td>23</td>
<td>18</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Meadow fox-tail gras</td>
<td>33</td>
<td>24</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Perennial rye-gras</td>
<td>39</td>
<td>26</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fertile meadow-gras</td>
<td>78</td>
<td>65</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rough meadow-gras</td>
<td>39</td>
<td>29</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Credled dog's-tail gras</td>
<td>35</td>
<td>28</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spiked felce gras</td>
<td>19</td>
<td>15</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Sweet-scented lot gras</td>
<td>82</td>
<td>72</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sweet-scented vernal gras</td>
<td>50</td>
<td>43</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fiorin</td>
<td>54</td>
<td>46</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Fiorin cut in winter</td>
<td>76</td>
<td>64</td>
<td>8</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

These...
VEGETABLES.

No differences have been found in the nutritive produce of the crops of different grasses cut at the same season, which could render it possible to establish a scale of their nutritive powers, but probably the soluble matters of the after-math crop are always from one-sixth to one-third less nutritive than those from the flower or seed crop. In this crop, the extraneous and saline matters are certainly usually in excess; but the after-math hay, mixed with summer hay, particularly that in which the fox-tail and soft grasses are abundant, would, it is thought, produce an excellent food or fodder.

In the clovers, the soluble matter from the Dutch clover is said to contain most mucilage, and most material analogous to albumen: all the clovers contain more bitter extract and saline matter than the common proper grasses. When pure clover is to be mixed as fodder, it should, it is said, be with summer hay, rather than after-math hay.

Other observations on this interesting subject may be seen in the appendix to the above work.

In cultivation, much use and advantage may, in many cases, be derived from changing the natural habits of vegetables, by fowing the seeds of them or planting them at unfavourable seasons, by placing them in more dry and warm, or more cold and moister situations, and by altering the time of their flowering, or the length of their duration, by cutting parts of them, or in other ways; as by such means some of them, though annual in their nature, may be made to last and afford crops for two or for several years. Others may furnish two or three green crops the same season, and an early one in the succeeding; and so on in a variety of instances in the garden as well as in the field.

VEGETABLES. Injuries or Disturbance of Parts of the affection and mischief which are produced in them by different agencies, as those of frost, lightning, insects, and some others. It is well known, that trees of the apple and some other kinds, in field fruit-grounds, orchards, and gardens, have their buds, blossoms, and other parts, often affected or destroyed by a fort of blight or canker induced by such causes; in consequence of which there are great failures in the crops of them. The mischievous effects of frost in this way may frequently be clearly traced, though they are seldom greatly injurious, when it is of the dry kind, unless it be very severe; but most certainly so, when it succeeds to large falls of rain. Sudden transitions from heat to cold are hurtful to vegetables: by warmth the vessels of them are expanded, and their juices flow freely: a sudden application of cold causes a sudden contraction of their parts, without a proportionate diminution of the fluids which they contain, which being thus unnaturally checked in their current, become stagnant and diseased. Rain is congenial to the growth of vegetables; and while Nature dispenses them to open all their pores, by which its influence can be received, when overtaken by frost in such a situation, the consequence must be injurious or fatal. It has been said by a philosophical writer, in speaking of the action of cold or frost, that besides its opposition to the adequate fluidity of the vegetable juices, it must be unfriendly to the animation of the solids, causing either local canker, or death of the whole vegetable. That when the vegetable fluids are chilled, and converted into ice, their bulk is vastly enlarged, and this enlargement sometimes takes place with such extreme violence as to rend them in pieces. In this way, frost, it is thought, destroys those parts of vegetables which are most succulent, particularly in that form of it which is called hoar-frost, or rime, so common in the spring season. The moisture of fog too is said to be equally mischievous, as far as it extends. Thus, in a fruit district, in one night at this season, a molt promis-
ing blossom has been cut off; the elm, oak, and ash, being injured at the same time: the line of devastation was precisely marked, proceeding in a horizontal manner through a certain vale tract, to the height of about thirty-five feet; the trees that grew on higher ground not being touched. The explanation of this circumstance seems, it is said, to be, that the fog, which rife more or less every evening, especially after a warm day, was, during the night, in this infancy, suddenly succeeded by a smart frost, which leaved the moulded parts to the point of elevation of the fog, and protected the mistletoe. Cold winds coming after a day or two of fine weather, may likewise prove destructive of the blossom in such cases of apple-trees in these fruit-grounds. On this account, in a northern exposure, the fruit is not unfrequently preserved, while in others it is destroyed; for the sun, not having much influenced the trees in this situation, they are left to the prevailing temperature of the sea, and thus enabled to bear the cold north-easterly blasts of the night without being hurt.

Though the second of the above causes is much believed to be hurtful to the trees in fruit-grounds by those engaged in them, the opinion has been considered as unfounded by some. If, however, the partial manner in which some trees and hedges are affected be considered, it will be difficult, it is thought, to account for the effect in any other way. This cause, like that of frost, may affect vegetables by its expansive power, bursting their velvets as it passes through them. In some cases, a single limb of a tree, in one night, loses all its foliage, and ceases to vegetate: in others, one tree of many in a fruit-ground; or on a row of trees in the same direction; and sometimes, whole fruit-grounds are affected in the same manner, and are difficult of recovery. The mischief is mostly done in a night, and with great uncertainty, as neighbouring trees in the very same directions often escape. In respect to the leaf of these causes, it has been observed, that frothy nights, with a north-eaft wind, in the spring, succeeding a warm day, are particularly injurious to the blossom of the apple; the warmth of the day hatches the ova or eggs of the insect which breezes in it, while the coldness of the night, by checking the progres of the sap, keeps the blossoms in its half-expanded state, to form a nidus for them. The opinion of apple-growers, too, is in support of this in most districts and situations. But whether insects are caused in this way, or by the diseased state of the trees, the more promising mode of preventing the ravages and destruction which they commit on the leaves, buds, and blossoms of such trees, is that of smoking them well by means of some proper substance, to which a little sulphur has been added. In this way they may moly be got the better of without much trouble.

The other causes of mischief have been noticed under their proper heads.

Many other forts of vegetables of the tree and other kinds are likewise liable to be affected, injured, or destroyed in their parts by these causes, the prevention of which may be attempted by similar means. See Difficult of Plants in Smith's Introduction to Botany.

Vegetable Acid. See Acid, and Vinegar.

Vegetable Ashes, in Agriculture, the substances of this sort which are produced from vegetables of different kinds by incineration. They differ much in their nature and quantities as afforded by different vegetables. In general, those of the herb fort furnish four or five times, and those of the shrub kind two or three times as much ashes as those of trees. The leaves in common produce more than the branches, and the branches more than the trunks. Those burnt in a green flate afford more ashes than such as are consumed in a dry condition. The quantities of ashes that are afforded by some common vegetables are, in 10,000 parts of the thistle, 53 of ashes; in the fame number of fern, 62; in that of the low-thistle, 105; in wormwood, 730; in vetches, 275; in beans, 200; and in funitory, 790; while in the fame number of parts of the poplar-tree, 7 of ashes are only afforded; in the beech, 12; in the oak, 15; in the elm, 39; and in the vine, 55. Such vegetable ashes as contain alkaline, matter, where they can be applied to land with advantage in some cases. The oxides of metals are sometimes found in the ashes of vegetables, but only in very minute quantities. In some ashes the vegetable ashes are of a reddish-brown appearance, they are mostly impregnated with the oxides of iron; but where they have a black or purple cast, with that of the oxide of manganese; and where these different colours are blended, they contain both such substances of the oxide kind.

The different saline compounds contained in vegetables, or afforded by the incineration of them, are extremely various, and have been considered under their several proper heads. See Sulphate of Potash, &c. Phosphate of Lime, &c.

The quantities of soluble saline matters, metallic oxides, and other substances which are afforded by the ashes of different vegetables, may be seen in a table inserted in the "Elements of Agricultural Chemistry."

These points may serve to direct and assist the farmer in the preparation and application of vegetable ashes in the most economical and beneficial manner, where they can be had recourse to with propriety as a dressing on land, or over crops of some kinds. See Ashes and Wood-Ashes.

Vegetable Earth, or Mould, that fort of fine reduced earthy material, which is formed and produced by the destruction and decay of different vegetable productions and materials, either upon the surface, or in the more interior parts of the land. The term is, however, more generally applied to the peculiar earthy substance, or body, which constitutes the superficial layer of fine black or dark coloured mould, in which plants, for the most part, strike or take root, and grow in every fort of ground or soil, and which varies very greatly in different situations and circumstances, in consequence of the variations that happen in respect to its depth, and the progress it has made towards the flate of perfect decomposition and destruction, as well as from the nature of the vegetable substances and matters of which it is constituted and composed. It has been supposed, too, as acquiring some diversity or difference of quality on account of its being more intimately or more loosely mixed and incorporated with the other bodies and materials that are found to constitute land; and, likewise, that the earthly matter which is formed from the destruction of some particular forts of vegetable materials, may be better suited for the purposes of vegetation than that which proceeds from others. It is an earthly material, which, besides being produced both by the diffolution and reduction of vegetable matters, as above, may probably be partly too acquired from the air, water, and light; by the procefs of vegetation, and partly from the properties of the lands in or on which it exists. In some cases it is of very considerable depth, while in others it forms merely a thin superficial coat or covering of the land; and there are still other cases, in which it is scarcely visible, or met with at all.

It may be noticed, that vegetables, in consequence of their having in their composition a large proportion of mucilaginous matter in a flate of mixture with their other materials or substances, especially in some forts, are in some de-
V E G E T A B L E S.

Gree capable of being dissolved in water, though the external coats or coverings of living plants, principally on account of the resinous material that enters into their composition, are preferred from its action and effects. It is plain, that in consequence of the fluid of these circumstances, and that of earthly matters being contained in them, which had been taken up in the fluid of solution or diffusion with their fresh fluids or juices while growing, that considerable quantities of vegetable earth or mould must be continually formed and deposited on lands by the natural diffusion and decay of such bodies. But its formation and provision are much more abundantly effected by means of the putrefaction and destruction of such vegetable productions as are cut down, or otherwise destroyed, on the surface of the land, and the laying of different kinds of manures and compost materials upon it.

In cafes where these have been in great abundance for a long time, there is mostly, it is said, a deep rich surface bed of this earth or mould; but that where few vegetable products, and those of the less luxuriant kind, have been left to undergo the above processes, or little affilience given by means of manures, the crust of surface earth or mould is commonly very thin and poor. In all cafes, it is evident that the diffusion and decay of vegetable materials must be greatly promoted and expedited by a proper degree of moisture, and suitable state of heat; the atmosphere being at the same time in a proper condition for the purpose. The clofe and flagnated state of different forts of luxuriant tall growing crops of the grafs, herb, plant, or other kinds, have likewise much effect in the forming and elaborating of this mouldy material, by the decaying foliage thereby promoted, falling down and being so much deposited on the land.

All these materials, during the state of decay, undergo different changes in their constituent principles or parts; the water which they contain being decomposed, pure air or oxygen is absorbed, heat difengaged, and new compositions of the aerial and faline kinds formed; by which means a number of matters are prepared and fitted for the use and support of vegetable life, which could not have been supplied in any other way, as well as rendered much more extensively applicable in this intention than they could otherwise possibly have been.

It is advised, that in order to promote the formation and production of vegetable earth or mould, recouerse should be had not only to such substances as accelerate the putrefactive processes, but also to such as have a tendency to increase the falsnosity of the vegetable earth or mould of the land itself: and that the fluid of these purposes may be promoted and attained by the application of such substances and materials as have been found useful in changing vegetable matters into the state of mucilage, such as the carbonate of lime, or effective lime, marle, chalk, and calcareous matters in general, and likewise some earthly saline substances, as the refuse of salt manufacturies, and others of that kind. That the latter of such substances is to be attempted by the use of different substances and matters that are of an alkaline nature; such as the afhes produced by the burning of various green vegetable materials, the urine of animals, the liquor of dung-hills and pits, night-soil, and many other such animalized matters and substances. There are many other ways, too, in which vegetable earth or mould may be made and rendered more abundant in land; such as the frequent growth of those kinds of crops that cover the ground in a close full manner, so as to produce a confined flate of the air, as already suggested; the consuming upon, or turning down into the ground, full, rich, and succulent green crops, by which much vegetable matter is brought into a state of decay; and

by the caufing of the deftruction and evacuation of infect of various forts, which are predominant in land, by the use and application of such substances and matters as have the power of effecting these different purpoifes and intentions.

It must be noticed, however, that it has been remarked by the writer of the work on the "Connection of Agriculture with Chemistry," that too large a proportion of vegetable matter in land, particularly where it is exposed to be much acted upon by the oxygene principle of the atmosphere, is liable to render the ground too loose and open in its nature for the growth of most sorts of crops of the grain kind; winter corms being, especeially from the sudden alternations of frost and thaw, frequently thrown out of fuch lands, and almost wholly destroyed. In cafes of this nature, great advantage may, it is faid, be derived from the use of different matters of the faline kind, and lime in its faturated flate, as by fuch means the vegetable parts of the land will be brought to their proper productive flate, in so far as the growth of crops is concerned.

It has been conceived too by the fame writer, that the abstraction of the oxygene principle from the surrounding atmosphere, or what is termed the process of oxygencation, is the principal cause of the retention of vegetable matter on the surface of the earth, in several earths, as well as others, but especially in such as have been long in a state of tillage, or under the plough. This process having the power, it is supposed, of rendering the vegetable matter lefs destructible, scarcely any of it being carried away in a state of diffusion by rains, or water in other ways, an accumulation takes place, which, under other circumstances, could not have happened. The indestructible state of vegetable matters under these circumstances, and their conftant accretion, may, it is thought, be referred to the infoluble compounds produced by the action of pure air on such infamblable substances. The infolubility, to a certain degree, of this system adopted by nature, is undoubtedly, it is fuppofed, to be preferred to one more completely folaible; for it is evident, it is faid, that if putrefaction or oxygencation had poffeffed the power of rendering all the vegetable matter, by a speedy process, folaible in water, two pernicious conftquences must have followed: the rains would have washed down fuch extracts, and folaible matters, as faft as formed, into the rivers and springs, contaminating the waters, and rendering them unfit for the exifence of fifties, or for the ufe of terrestrial animals. The fcin of process of time would thereby receive all the vegetable and animal produce of the dry land, and the earth would ultimately become barren, confufling alone of the fimple earths, without any admixture of vegetable matter; confequently there could be no accumulation of this fubflance on the surface, as is the cafe to an immense degree at prefent. As fuch, there cannot, it is conceived, be a doubt, but that the prefent incomplete processes of putrefaction, oxygencation, or folution of organic bodies, has been efftablifhed by the great Creator of all things for wife and benevolent purpoifes; especeially when it fhall be underflood, that the apparent infperfections of this, to a certain degree, infoluble fystem, are, as they respect agriculture and vegetation, to be remedied, when neceffary, by the ingenuity and industriy of man. It is confequently fuppofed that the vegetable matters which exift in lands, from their admitting different degrees of this process, and, of course, becoming more or lefs infoluble, have different powers in forwarding the growth and support of plants. Where the exposure to these causes has been long, they are generally more infoluble in their nature than where the contrary has been the cafe. See Oxigenation.

Upon the whole, vegetable earth or mould should be accumu-
nulated in grases lands as much as possible; but where grain
crops are to be raised, a proper mixture of other earths
is necessary, to give them stility, and prevent their being
thrown out of the ground.

Vegetable Fly, in Natural History, an insect found in the
island of Dominica, and (excepting that it has no wings) re-
sembling the drone in size and colour. In the month of
May this insect buries itself in the earth, and begins to
vegetate. By the latter end of July the tree is arrived at
its full growth, and resembles a coral branch; being about
three inches high, and bearing several little pods, which
dropping off become worms, and afterwards flies, like the
English caterpillar. Dr. Hill, in his account of this pro-
duction, to whose examination it was submitted, observes,
that the Cicada is common in Martinique, and in its nympha
state, in which the old authors called it tetitogemata; it buries
itself under dead leaves to wait its change; but when the
seafon is unfavourable, many perish: and that the seeds of
the clamaria fabolifera, which is a fungus producing fosbales
or shoots from its fides, and growing in putrid animal bodies,
find a proper bed on this dead insect, and grow. This, he
says, is the fact: though the untainted inhabitants suppose a
fly to vegetate, although there exists a Spanish drawing
of the plant's growing into a trifoliate tree; and it has been
figured with the creature flying with this tree upon its

Vegetable Oil. See Oil.

VEGETATION, in Vegetable Physiology. See Ger-
mination, Circulation of Sap, Spiral Vessels, Leaf,
&c.

Vegetation, as it relates to Agriculture and Gardening,
is of considerable importance, by explaining the nature and
means by which plants and crops receive nourishment and
support, and are the beef promoted in their different growths.
In respect to grain, feeds, and fets, it seems evident, from the
experimental enquiries of Mr. Gough and others, that during the
act or procels of their germination or infant vegetation,
they draw the oxygen principle from the surrounding atmo-
sphere, part of which is retained, and the remainder thrown
off, charged with a portion of carbon; and that, in this proc-
cel or operation, the substances of the feed-lobes, or other
parts that answer the fame purpose, of course undergo a con-
iderable change, an additional proportion of the fame prin-
ciple entering into their composition, while a portion of their
carbon is difipated and destroyed: that by this alteration in
the proportion of their constituent principles and parts, the
faccharine fermentation is induced to take place, and fugar is
formed, as demonstrated in the operation of malting grain:
and that the fugar and carbonic acid, from their being more
fuble in water than in the oyd of faraneous matter, easily
combine with the moisture in the capillary vesfels of the
feed or other substances, and find a ready paflage to the
germ; the vegetative principle being thus brought into
action by a fimumus fputed to the particular nature of it:
and that by the decomposition of the feed-lobes, or other
parts, a nutritious fluid being thus formed and distributed
through the infant plant, its organs are excited to exert
their peculiar specific actions in decouping the nour-
ishment conveyed to them, and in forming new oxys from
the elementary principles of it, in order to the increase and
evolution of the vesfels and fibres.

As it is in this manner that the first stage of germination
or vegetation is suppozed to commence, it would appear
that in such feeds and fets, in order to their undergoing
these different changes the most readily, and in the most perfec-
t manner, on which, probably, healthy growth may ma-
terially depend, they should only be properly deposited
in the earth or soil, but, in the cafe of grain and feeds, be
so well ripened and filled with faraneous or mealy matter,
and possess such a degree of moisture, as may difpose them
to undergo such changes in a suitably fpedia manner;
while, at the fame time, a due supply of proper nutritious
matter is afforded for the perfect germination and early
growth of the infant vegetables or plants. They should
not consequently be put too deep in the ground as to be too
much excluded from the action of the air, or be fown or
feit when in too dry a condition from the state of the feafon
or other caufes, but be conffantly fuffered to have as much of
the agency and influence of fuch forwarding powers as
may be neceffary for the perfect vegetation and growth of
the plants or crops.

Others conclude on the grounds, and for the reafons that
are flated below, that two of the airs of which the atmo-
sphere is compounded, are absolutely neceffary to the
nourishment and proper growth of vegetables; those of vital
air or oxygen, and mephitic air or azote. It is found from
different trials, that plants placed in vital or oxygen air grow
larger, become more powerful, and are greener than those
put in that of the atmefpheric kind. That if the feeds of
the kidney-bean and the pea be put into earth of the fili-
ceous kind, and be fprinkled with water mixed with a small
portion of the oxygenated muriatic acid, in which oxygen
the most abounds and the most loosely adheres, they ger-
minate much sooner than if sprinkled with pure water:
but that if seeds be immerfed in diluted muriatic acid, they
become black and rugeous, and never germinate. That in no
kind of air deprived of oxygen do plants vegetate; for
if they be placed in azotic or mephitic air, in carbonic or
fixed air, they become faffed and drooping, it is faid, by
the heat of the fun, and gradually die away. And that in
nitrous air, plants become inactive in a few hours. It would
appear from this, it is thought, that the portion of vital or
oxygen air imports a natural stimulus, which is highly ne-
ceffary to excite the fibres and fustain the living power and
strength of the vessels of plants; and that, laftly, this air,
with the peculiar acidiflable bases, generates the various
acids which are found in plants or vegetables.

As the gluten of the fibres of vegetables confifts of car-
bon, chemically combined with azote, it follows, it is sup-
pozed, that the azotic air is abforbed or taken up by
the plants; and that it is by this means that vegetables in-
crease fo rapidly in rich foids, cemeteries, and other places
where animal and vegetable matters putrefy and decay in
large quantities in or on the ground.

Carbonic air too dissolved in water is absolutely ne-
ceffary to the vegetation of plants in order to provide their
carbonic principle, which is a conftituent part of the fibres,
oil, mucilage, and other vegetable principles.

It is fuggested, that plants appear to derive their caloric
or matter of heat from the surrounding atmefpheric air.
Hence it is that the flies of trees are fo cool; and that
nothing is more healthy for almost all plants in their vegeta-
tion and growth, than mild tepid flowers, by which they
obtain water together with this principle. That, laftly, feeds
do not vegetate in the cold, and many plants die in it.
Heat too is evidently of much benefit in vegetation, as giving
the natural colour to the foliage, flowers, and fruits of plants,
aeftuating or promoting the flow and circulation of the fap-
juice, increasing the faccharine matter, and promoting the
flavour of mott forts of fruit.

Light too contributes to the life and healthy growth of
plants; for those which vegetate in atmefpheric air de-
prived of its light, as in the night and dark places, become
dead and weak; but in the day-time, strong and coloured.

The
VEGETATION.

The rays of light, likewise, appear to contribute to stimulate plants, with the various gales or vapours they absorb and take up from the air.

Pure air has also been found by many to be essential to the production of perfect feeds, pulse, grain, and fruit, and that by its action upon or being taken up by the foil, it has very powerful and beneficial effects in promoting vegetation and the perfect growth of plants and crops.

Thus water, air, and these other matters, appear to have a very great share in the vegetation and nourishment of vegetables, but especially the two former. The first has been considered as indispensably necessary to the processes, and as supplying the principal materials of vegetable juices. It is unquestionably the chief medium through which the various nutritious matter derived from the soil, is conveyed to the plants which grow upon it. But it has been supposed more favourable to the vegetation and growth of grafted plants or crops than those of the grain kind; as crops of grains may be continually produced by watering, while with those of grain it has been found to be wholly impossible. It is found, however, that soft water, such as that of rivers, rain, or which has been exposed to the action of the sun for some time, is more favourable to vegetation, than such as is hard, as that of springs, or which is impregnated with metallic substances and other such matters. The author of Phytologia considers the first three things necessary to the infant vegetation and growth of plants to be heat, water, and air, as furnishing the general causes of fluidity, the menhirinum in which nutriment is conveyed, and the principle of excitability so perpetually necessary to all organic life.

However, besides these different matters, other agents are necessary, after the plants have been formed and evolved, to the perfect vegetation and growth of the crops, as those of earth or other such matters, which are not only useful and essential for the purpose of holding and supporting the plants in a steady and erect manner, but also for containing and conveying, at least, some portion of the food on which they live, as derived from the atmosphere or other sources, and for the regular ramification and extension of their fibrous roots, in order that it may be more certainly provided and supplied. They are beneficial too in receiving, retaining, and distributing moisture to them, as well as in receiving, reflecting, and dispersing the heat of the sun, dew, and exhalations of different kinds, by which their growth and perfection are greatly promoted. For though some plants of the aquatic kind grow in water, most of them have their roots in earth. Even marine plants, although they grow upon bare rocks or flores, are well known to be fixed to them, and that they derive their food from the seawater in or near which they exist. It has been contended by some that plants are actually nourished by earth alone, but numerous experiments shew the opinion to be erroneous, and that it is perhaps only the medium of their existence. It is well ascertained that they are capable of acquiring a great acception of weight, without almost any loss of weight of the earth in which they have been planted.

The air and affinities of dead organized materials are, likewise, requisite in the processes of vegetation and the growth of crops, as it would seem to be a part of the beautiful and orderly arrangement of Nature, that nothing should have life in vain, and that the destruction of one plant or animal should furnish food for others; consequently, that however useful air, water, light, heat, and earth may be to the growth of plants and crops, it is, if not certain, at least questionable, it is thought, whether they could ever come to perfection without the help of matter that had been formerly in an organized state. The richest soils, it is well known, are full of dead animal and vegetable matter, and there is no soil that will not produce plants or crops if a sufficient quantity of dead animal or vegetable substance be added to it. Under this denomination are comprehended all those manures which are found so useful in cultivation, more especially those to which some authors give the name of muriaticous, nitric, or nutritious. These substances and materials are greatly beneficial, by correcting the tenacity of stiff soils or lands, and the over-repotency of light ones, by producing a fermentation in them, and by affording nutritive matter to the roots of vegetables, as well as by retaining moisture in dry and expelling it in wet lands. Saline substances have been supposed too of much importance in vegetation by some, but they do not appear essential to the growth of any fort of plants except the marine; and there are many productive soils in which little or no saline matter can be discovered. Such matters may, however, be of use to vegetation, though not essential to it. That of common salt may operate upon plants as it does upon the human body, by afflicting to digest the food, without furnishing nutriment itself. It is of use, mixed with dung, as an affilant to putrefaction, and it may act in the same way in promoting vegetation. It is serviceable too by attracting moisture, destroying vermin in the soil, and decreasing and reducing the roots of any plants it may first meet with, thus furnishing nourishment to the succeeding ones.

It is found likewise, that the culture of the earth is essentially necessary for the vegetation and growth of plants and crops to perfection, the health and vigour of both the roots and branches being thereby greatly increased. By dividing and reducing the particles of soils, the roots of the plants and crops put into them can more easily and readily penetrate and spread out in them, as well as function in more expeditiously the nourishment which they contain. By proper and effectual culture too, such weeds or useless plants as are apt to rise, are extirpated and destroyed, whilst tilling the earth admits air and moisture more fully to the soils, and to those plants and crops the seeds orlets of which have been sown or put in them. It is evident likewise, that young trees thrive and succeed much better, if the soils in which they are planted have been previously ploughed in to deep a manner, as readily to admit their roots and suckers. Even after they are planted, it is supposed to be of great service to have potatoes and other such roots cultivated among the young trees in the plantations with a view to kill weeds, and loosen the foil for the free admission of air and water. And the practice seems to be generally well received, and to have much effect in promoting vegetation in most forts of vegetables.

The management of the farmer and gardener should, of course, aid and affil these views and intentions in every way as much as possible, in raising and producing plants and crops of different kinds; as by the suitable cultivation of the ground, the proper application of manure or other substances of that fort to it, the preservation of the moisture of it by different modes of cropping, and by every other practicable method in their power; as by such means the perfect vegetation and growth of them may be the best promoted and affil. See Following Land, Pulverization, Seed, &c.

It may be observed, that the substances or matters in land which have hitherto been found injurious to vegetation, are chiefly those of the metallic, sulphurous, aluminous, and alluring kinds. It has been noticed, that where mines of iron, lead, or copper, are near the surface, no plants will grow to perfection, as is well ascertained to be the case in different
different mining districts. Schistus too, in which there is generally a great deal of iron and alum, is found so unfavourable to vegetation, that any considerable quantity of it would destroy the fertility of the richest forts of land. The noxious, corroding, and weakening effects of such substances on the tender roots of vegetables being such in some cases as to cause their decay, dissolution, and destruction. Frequent flirring, or the exposure of new surfaces of land to the action of the air, and the use of lime, chalk, or other diluting matters, will, it is supposed, correct the injurious qualities of this substance, and promote the vegetation and growth of plants and crops in such states of land. The astringent principle or acidity in peat is often so great and so noxious to vegetation, that until any quality of that nature can be found, though that fort of land be a perfect mass of vegetable matter, nothing but heath and other such miserable plants are capable of growing in it. Vegetation is consequently in such cases only to be affixed by breaking the parts of the land well down, and the application of earthy and other matters to it, so as to wholly destroy its astringent property, and in fact change its nature. See Soil.

It may be noticed too, that the vegetation or growth of plants and crops is frequently much injured and impeded by the various sorts of vermin with which the earth as well as the air abounds. Thole which inhabit the earth, it has been supposed, may be destroyed and got quit of by the use of saline matters, lime, and other different substances, operations, and arts, as are seen under their several proper heads. See Grub, Mole, Slug, Worm, Vermin, &c. also Turnip.

But in regard to the myriads of thole of the infect kind with which the air abounds, it is more difficult and uncertain to propose or point out any remedy or means of prevention than to find one. It is not ascertained that the smell of any plant, in its natural growing state, is a destructive of infects; but there are several plants which are, when dried and reduced to powder, or when burnt near to certain insects, destructive of them, as thole of tobacco, hemlock, henbane, rue, wormwood, and others. Sometimes, however, vermin of this fort are occasioned by the weak stems and unhealthy growth of the plants, and the poverty of the soil of the land where they grow; the best remedies in such cases are, of course, thole of more perfect tillage and cultivation, so as to render them strong and healthy in their vegetation.

Vegetation, Artificial. Many of the processes and operations in chemistry afford productions, whether of fals or metals, or of whatever other substances, which very much resemble plants of one kind or other, whence they have been called metallic vegetation. But though many have been hence induced to believe, that these productions were formed in the manner of vegetables, there is not the least ground for such an opinion from reason or experiment.

M. Homberg, who has treated very accurately of the several kinds of these chemical vegetables, divides them into three different classes.

Thole of the first class are such as consist of a pure mafly metal, without the mixture of any foreign matter whatever. Thole of the second class are composed of a diffolved metal, which, though it has concreted afterwards, yet retains a part of the metal in it; and the third class contains thole which have no metal in them, but are merely composed of fals, oils, or earths, or of combinations of these.

All the productions of the first kind are made without the admixture of any liquor, and are merely owing to the force of fire. These are of a firm and solid texture, and may be taken out of the vesseles in which they were made, without danger of breaking them. On the other hand, the vegetations of the second kind are all formed in a fluid, and are all so brittle, that they are not to be touched without breaking. Of the third kind, some are formed, or will fusifi at least, in the dry air; others are very tender, and are formed only in fluids, the very flirring about which of itself destroys them. See Arbor.

Vegetation of Salts, a name given by M. Petit of the Academy of Paris, to the concretions which falls form, after solution in water, when let in the air to evaporate.

These concretions always appear round the surface of the liquor, affixed to the sides of the vessele, or arising above its top, and are very different in the different falls, and in most of them very beautiful.

One of the most ready and most beautiful of all the saline vegetations, is that formed by a solution of the falls in the caput mortuum of aquafortis with common water. If a pint of water be put to half a pound of this caput mortuum, and the whole boiled together, that the falls may be diffolved, and the liquor afterwards filtrated, and exposed in an earthen vessele, there will be formed, in about eight and forty hours, vegetations wholly like those from the mixture of spirit of nitre and oil of tar, except that those from the caput mortuum are more ramified and more beautiful. When the solution is exposed in a glass vessele, they form themselves on the surface into very beautiful figures of trees, shrubs, and bushes; and this not only on the surface, but on both the inside and outside of the glass. These can be compared to no known concretion, except to the vegetations of iron, described by M. Lemery; they differ indeed in nothing from these, but that the vegetations of the metal are of a brownish colour, whereas those of the fall are white. Sometimes, however, a beautiful such vegetation of the kind of alio, succeeds, it being formed in dry weather, in a moist season the vegetations form themselves more slowly, and are much less beautiful.

Glass vesseles are also essential to the vegetations being formed in their greatest beauty; they are never nearly so beautiful in earthen ones; and even in the former, the vegetations succeed much better in some sort of glasses than in others. The caput mortuum of aquafortis alio is very different, from the different diffutations; and all of it does not succeed alike in this vegetation of the fall. That which looks lightest, and of the reddest colour, seems the best for this purpose. An impregnation of this caput mortuum in red-wine produces no vegetations, but only forms a crust with small eminences on the sides of the vessele; and salkpetre, diffused in the impregnation of this caput mortuum in water, produces a much more beautiful vegetation than that of salkpetre alone; but at the same time much less beautiful than that of the impregnation alone. Salt-water, diffused in the same impregnation, sometimes will produce beautiful vegetations, but sometimes only a rough crust. Common rough salkpetre forms no vegetations, but only crusts over the vessele, as is the case with the solutions of many of the metals in different acid menfrums. And the same is the case in regard to many falls from which it might be natural to expect concretions of this kind. Memoirs Acad. Par. 1722.

VEGETIUS, FLAVIUS RENAETUS, in Biography, lived in the reign of the emperor Valentinian, to whom he dedicated his treatise "De Re Militari." Although he was probably a military man, his Latin style was pure, considering the age in which he lived. The best editions of his work are the Variorum, Leyd. 1644, and Vefal. 1670. Turpin's Commentary was printed in French, Paris 1783, in vol. 4. A work
A work on the veterinary art, by a writer of the same name, is printed with the “Scriptores Rei Rutilicae.” Moreri. Gen. Biog.

VEGETO-ANIMAL Matter, in Agriculture, a term formerly applied to one of the principal constituent parts of the farina, meal, or flour of some vegetable seeds. It is found in the greatest proportion in grain, especially that of the wheat kind, existing in a flake of mechanical union or mixture with mucilage or starch. On cautiously washing wheaten flour in the form of paste, in a kneading manner, under a small stream of water, until the whole of the flarky matter be removed, this substance or material is found in an elastic, duehle, tenacious flake, but incapable of being dissolved in it. It has none or scarcely any tafle, readily draws out and contracts, and is of a whitish-grey colour. When fully drawn out, it extends to the length of about twenty times its diameter before it breaks, and appears as if composed of fibres placed beside each other, according to the direction in which it has been drawn. If the force ceases, it recovers its original form by its elasticity; when dry, it is semi-transparent, and somewhat resembles glue in its colour and appearance. If it be drawn out thin when first obtained, it may be dried by exposure to the air, and in that flake it has a polished surface, somewhat resembling that of animal membranes. If it be exposed to warmth and moisture while wet, it putsrefies like an animal subflance; it crackles, swells, and burns, exactly in the manner of a feather or piece of horn. By distillation it affords, like animal subflances, alkaline water, concrete volatile alkali, and an empyreumatic oil. Its coal is very difficultly incinerated, and does not afford fixed alkali. From these facts, it is said to be obvious, that it is a subflance totally different from all the others known to exist in vegetables, except albumen, which has lately been discovered in some of them, and in many of its characters resembles the fibrous part of the blood. It does not appear to exist in any considerable quantity in other farinaceous subflances, such as rye, barley, buck-wheat, rice, and others of the same kind. M. Berthollet, however, thinks that it contains phosphoric acid like animal matters, and that this is the reason of the difficulty with which it is incinerated; and the younger Rouille found a glutinous subflance in the seeds of plants analogous to that of wheat. It is now commonly called gluten, and said to become a brown colour by exposure to the air, to be very fuggibly soluble in water, and to differ from albumen in being infinitely less soluble in that fluid. When burnt, it affords similar products to that subflance, and probably differs very little from it in composition. It is found in a great number of plants. Proodt is said to have discovered it in acorns, chestnuts, horse-chefnut, apples, quinces, barley, rye, peas, and beans; likewise in the leaves of rye, cabbages, cresses, hemlock, borage, saffron, in the berries of the elder, and in the grape. It appears, it is said, to be one of the most nutritive of the vegetable subflances; and that wheat seems to owe its superiority to other grain, from the circumstance of its containing it in larger quantities.

In the work on the “Connection of Agriculture with Chemistry,” it is said that different kinds of grain contain mucilage or flarch, and this subflance in different proportions, and that the same kind of grain contains them in different quantities, according to the climate, season, and soil. But that good wheat generally contains two-fifths of animalized matter, and three-fifths of flarch. And that good and well-raised bread depends on flour containing a due admixture of these two subflances. Hence, it is thought, by mixing the flour of different kinds of wheat, better bread may at times be produced than from one sort only. Extensive benefits, too, may arise to the proceeds of brewing, distilling, and making of vinegar, by a mixture of the different sorts of grain; and to that of distilling, a further advantage would be derived by a mixture of different roots with the grain, such as potatoes, parsnips, carrots, and many others, if prepared in a proper manner.

VEGETO-MINERAL Water of Gourd, in Medicine. See Water of Lead.

VEGGIANI, in Geography, a town of the island of Forcici; 12 miles W. of Bonifacio.

VEGI, or Vegi, the names given by the Arabian physicians to the accours. These writers seem not to have been acquainted with the plant itself in its growing state, but only to have known that part of it which was used in medicine in their time; but the Greeks described the plant in some fort.

VEGIA, in Geography, a town of Africa; 45 miles W. of Tunis.

VEGIANO, a town of Naples, in Bashcalcia; 12 miles S. of Potenza.

VEGI0, Maffeio, in Geography, was born at Lodi in 1406, and studied at Milan and Pavia, manifesting in the former place an attachment to poetry, and in the latter directinng his attention to civil jurisprudence. He obtained some honorary and lucrative appointments under the popes Martin V., Eugenius IV., and Nicholas V. Highly respected and esteemed for his genius and learning, as well as for the sanctity of his life, he died in 1458. As a Latin poet, he composed with facility, but without being distinguished for elegance or purity. He began, in his early age, with profane poetry, composing, among other works, an additional book to Virgil's Aeneid; but after he entered into the priesthood, he confined himself to sacred subjects. The best of his works in this class, highly commended by Dupin, was his treatise "De Educandis Liberorum et Rurum Claris Moribus." His prose style is accounted elegant and polished for his time. Moreri. Gen. Biog.

VEGLENSKOI, in Geography, a town of Rusia, in the province of Ufing, on the Vim; 72 miles N.E. of Yarenk.

VEGLIA, an island in the gulf of Venice, near the coast of Dalmatia, about 50 miles in length, from 6 to 14 broad, and 90 in circumference, anciently called Curitza and Fulfin. In the decline of the Greek empire, it obtained the name of Recla, of which the present is a corruption. It is situated in the innermost part of the gulf of Quarnero, and separated from the continent by a small canal only. There are many harbours, but unfit for the reception of large vessels, on account of the storms by which they are agitated. Its soil is mountainous and rocky, towards the north Recla, but very fertile to the south, and the valleys are extremely fruitful. The greater part is covered with woods, which occasion a considerable trade in firewood. Agriculture is not so much attended to here as the culture of the vine, which produces excellent wine. The culture of silk is insignificant; the breeding of horses is more important. The breeding of sheep and goats is likewise considerable. The quarries produce a red spotted marble, not unlike that of Verona, which is much known by the name of Mandulista of Venice. This isle is inhabited by 17,600 souls. N. lat. 45° 16'; E. long. 14° 42'.

VEGLIA, a sea-port town, situated on the S.W. coast of the island so called, surrounded with walls and defended by a caile, in which the governor resides. It is the see of a bishop, suffragan of Zara, and contains about 3,600 inhabitants. N. lat. 45° 11'; E. long. 14° 38'.—Alfo, a town of Naples, in the province of Otranto; 15 miles S. of Brindisi. VEG-
VEGLIANA, a town of France, in the department of the Po, near the Little Doria, where the French obtained a victory over the Piedmontese and Spaniards, in the year 1670; 13 miles N. of Turin.

VEGLIONELLA, a town of Naples, in Basilicata; 20 miles S.S.W. of Turin.

VEGRE, a river of France, which runs into the Eure, near Yvry.

VEHAILEK, a town of Arabia, in the province of Nedaj; 70 miles S.W. of Jamama.

VEHICLE, Vehiculum, in its literal sense, signifies somewhat that carries, or bears a thing along. See Carriage, Wagon, Wheel, &c.

Thus, in Anatomy, the term is said to be the vehicle that conveys the globules of the blood.

In Pharmacy, any liquid serving to dilute another with, or to administer it in, more agreeable to a patient, is called a vehicle.

In Painting, vehicles denote certain fluids, which are added to colours, in order to give them an unequous consistence while used, that they may be laid on and spread properly, adhere to the grounds on which they are laid, acquire a proper degree of tenacity when dry, and defend them from being injured by accidents. The principal vehicles hitherto used are oils, water, spirit of wine, and turpentine. But as water and spirit of wine want the unequous consistence necessary for spreading the colours, and dry away totally without leaving any glutinous subfance to bind and fix such of the pigments as are of an earthy or incohering texture; gums, size, varnish, and other such viscid subfances have been superadded to supply their defects, and render them of a due consistence and body.

VEHNE, or Vene, in Geography, a river which rives in the biphopic of Munifter, and joins the Solte, near Stickhauen.

VEIA. See Veglia.

VEICAMA, a town of Spain, in the province of Guipuscoa; 12 miles from Tolofa.

VEIENTANA Gemma, in Natural History, the name of a gem described by Pliny, and said to be found in Italy; he says it was black, but surrounded with a circle of white: it was probably a stone of the came kind.

VEIER, in Geography, a town of Spain, in the province of Seville, near the Straits of Gibraltar; 9 miles S. of Medina Sidonia.

VEII, in Ancient Geography, a town of Italy, in Etruria, S. of the Falerin, but nearer the Tiber and Rome. This was a very ancient town, and very considerable on account of the wealth and the value of its inhabitants. Its original name was Veja, which was also, among the Olci, the name of one of those carriages in which they refided before they had houses. Its vicinity to Rome was one principal cause of its misfortunes; for the jealousy and envy of that city were excited by its opulence and prosperity. From the time of Romulus, the inhabitants of these rival towns contended. At length Veii was taken by Camillus, after a siege of ten years, in the year of Rome 356 or 357. The booty was very considerable; and part of it was lodged in the temple of the Python Apollo. It is a sufficient evidence of the eligible sitution of Veii, that after the capture of Rome by the Gauls, it was a subject of deliberation whether this town should not be made the capital of the republic.

VEIL, Velum, a piece of stuff, serving to hide or prevent the light of any thing.

In this sense, we read of a large veil, or curtain, in the temple of Jerusalem, miraculously rent at the passion of our Saviour. In the Roman churches, in time of Lent, they have veils, or curtains, over the altar, crucifix, images of the saints, &c.

VEI is also used for a large piece of crape, worn on the head by nuns, as the badge of their profession. Whence, to take the veil, signifies to commence religious.

The novices wear white veils; and those who have made the vows, black ones.

The prelate before whom the vows are made, blesses the veil, and gives it to the religious.

VEIL, in Botany, see CALYXTRA. These terms are now exclusively appropriated to the membranous covering of the germen in Musci and Hepatische, through the summit of which impregnation takes place, and which therefore must be considered as a peculiar organ, partly perhaps, but not exactly, analogous to a corolla. It is elevated with the ripening capsule in Mufci, but splits irregularly, to let the fruit pails, in Hepaticae. The reader is required to correct two important errors of the press in the 8th column of the article MUCI: line 18th, for jinks, read jibanks; line 60th, for sexual, read sexual.

VEIL, CHARLES MARIE DE, in Biography, the son of a Jew at Metz, and a profelyte to the Roman Catholic religion by Boiflet, became a monk of the Augustin line, and entered among the canons-regular of St. Genievre. Pursuing his theological studies at Angers, he took the degree of doctor in theology, and taught in the public schools. In 1679 he visited England, and abjuring Popery, conformed to the English church. He had previously distinguished himself by his feriptual researches, and published Latin commentaries on the gospels of St. Matthew and St. Mark, on Joel, and the Canticles. During his stay in England he addressed a letter to Mr. Boyle, the design of which was to prove, against Father Simon, that the Scripture is the only rule of faith. In London he reprinted his commentary on the Canticles, giving a literal explanation of that book; and he also published commentaries on the twelve minor prophets, and on the Acts of the Apostles. At this time he styled himself a prebyter of the English church, but in conquence of marrying the daughter of a Baptist, he became connected with perons of that persuasion, and preached among them in the year 1685. His death is supposed to have happened about the close of the century.

The brother of the preceding, LOUIS DE COMPIEGNE DE VEIL, was also a converted Jew, and distinguished for his knowledge of Hebrew literature. He was interpreter of Oriental languages to the king of France, when he accompanied his brother to England, and joined in communion with the English church. The principal works he published were " The Jewish Catechism of Abraham Jagel;" a Latin translation, with notes, of " Maimonides de Sacrificis," and also of Abarbanel's "Exordium in Leviticum." Moreri. Gen. Biog.

VEILLANE, in Geography. See Veglana.

VELLLY, or Vesley, a town of France, in the department of the Aine, on the Aine; 9 miles E. of Soifons.

VEIN, in Anatomy, the name of those veiels which convey back to the heart the blood carried out from it by the arteries. All the details relating to the structure of these tubes, to their arrangement in the body, and to their office in the circulating fluid, are considered in the articles Heart and Circulation.

The veins are naturally arranged in three divisions: viz. the general venous systenl, commencing from the capillaries all over the body, and pouring the black blood into the heart by three large trunks: 2dly, the pulmonary veins, which
which are concerned only in the minor circulation: and gaily, the fyllem of the vena portarum, in which the blood that has circulated through the organs of digestion is conveyed to the liver, and distributed through the substance of that organ. The umbilical venous fyllem of the foetus, with its ramifications in the placenta, its trunk in the umbilical chord, and its subsequent course and distribution in the liver, is not included under either of these divisons. It belongs to the feta! state of exisfence, and is described under Embryo.

On the subject of the pulmonary veins, we have nothing to add here to what is Stated in the articles LUNG, CIRCULATION, and HEART: the vena portarum is described under LIVER; and the peculiarities of arrangement, belonging to the veins of any organs, are noticed in the account of those organs: so that the present article will include fimpily a description of the situation and course of the veins of the general syfem. These we shall trace, according to the course of the blood in them, from the branches to the trunks; as, on the fame principle, the arteries have been traced from the trunks to the branches.

The veins of the general syfem may be arranged in three divisions, according to the great trunks which terminate in the right auricle: viz. the cardiac veins, those belonging to the superior, and thofe to the inferior vena cava.

I. The veins of the heart do not all end in one trunk: besides one large vein, there are fome smaller. The great coronary vein of the heart (grande veine cardiaque polferiere) runs in the groove between the left auricle and ventricile; and opens on the left of, and below the folia ovaha and valvula Euflachii, in the right auricle. A middle coronary vein runs in the inferior flat surface of the heart, between the two ventricles, to open by a common orifice with the former, or close to it. At this opening into the auricle, a valve is placed, diferring confiderably in fize and appearance; sometimes filamentous and broad, covering the whole aperture, at other times smaller and hardly diftinguifhable; fometimes perforated or reticulated. See Heart.

Some fmalier veins open by one or more trunks in the anterior part of the right auricle. See the plates of Senac, fur la Structure du Coeur, &c. on these veins.

II. The superior vena cava receives the veins of the head, neck, thorax, and upper extremities.

The superfical veins of the head and face end for the most part in two trunks, an anterior and a posterior.

The anterior facial vein (fronfalen or angular) commences on the forehead, runs along the inner angle of the eye, and then pursues its course obliquely along the face from the corner of the eye to the base of the jawbone, which it passes at the fame point with the external maxillary artery. It joins, behind the angle of the jaw, the trunk of the posterior vein. This anterior facial vein, which is a large and very confluent trunk, receives a vast number of venous ramifications from all parts of the forehead and face, which are conveyed by one univerfal vena net-work or plexus. (See two excellent plates by Walter, Observat. Anat. 1775.) The following are enumerated as the vellfes which open into it: 1, vena frontales; 2, v. supra orbitalis; 3, 4, v. dorsalis nafl, superior and inferior; 5, palpebralis inferior interna; 6, 7, alaris nafl, superior and inferior; 8, palpebralis inferior externa; 9, 10, labiales superiores; 11, 12, two from the zygomatici and levator labii superiors; 13, ramus profundus vena facialis interna, formed by the junction of a vena ophthalonica facialis, which, communicating by its opposite end with the cavernous sinus, receives branches from some parts in the orbit; b. naflis posterior interna; c. alveolaris superior; d. veins of the buccinator, &c.; 14, labialis media; 15, 16, vena labii inferioris, superior and inferior; 17, 18, buccalis, superior and inferior; 19, 20, three, or four vena maffeterice; 21, submentalis; 22, glandulae faciei, &c.
taching the skull-cap. But the principal veins it receives come from the superior or convex surface of the hemispheres. These are spread irregularly over the convexities, advance from the fides towards the middle, uniting into larger and larger trunks, and open in considerable numbers on each side of the sinus: they receive the veins from the opposed flat surfaces of the hemispheres. The anterior branches are the smallest; the middle and posterior are much larger. They are directed at their termination obliquely from behind forwards, and sometimes pass for half an inch, in the substance of the coats, before they open.

The two lateral sinusæ, right and left (sinus transversi), are produced by the division of the superior longitudinal at the internal occipital protuberance. They are usually of equal size, but sometimes differ in this respect, the right being often larger. They proceed along the internal transverse ridge of the occiput, at the posterior attachment of the tentorium, as far as the commencement of the petrous portion of the temporal bone, when they descend along the internal surface of the mastoid portion of that bone to the foramen lacerum in bâti cranii, through which they quit the skull, taking the name of the internal jugular veins. These sinusæ are as large as the termination of the superior longitudinal; and are generally uniform on the internal surface. The cavity is triangular, where it occupies the posterior attachment of the tentorium: the base of the triangle being turned backwards, and corresponding to the skull, and the two fides being inclined towards each other, and joining at an acute angle in the tentorium. Where it lies in the mastoid portion, it confids of a layer of membrane lining the bony channel and another paffing directly over it.

The lateral sinus receives veins from the back of the cerebrum and cerebellum, and some meningeal veins; large branches from the integuments of the skull through the mastoid foramina, and from the muscles of the neck through the posterior condylid holes; veins from the cavity of the tympanum, according to Soemmerring; the superior and inferior petrous sinusæ; and the occipital sinusæ.

At the under or concave edge of the falx, there is found the inferior longitudinal sinus (falciiformis inferior). This is very small, just admitting a probe, and it opens behind into the following: it may rather be regarded as a vein than a sinus.

The fourth sinus (perpendicularis, torcular Herophili, sinus droit) is placed at the junction of the falx and tentorium, has a triangular figure, the bases being formed by the tentorium, and the sides by two oblique layers of the falx, and exhibits internally several prominent fibrous fasciculi. In fize it is about equal to a goose-quill. It receives in front the small vein called the inferior longitudinal sinus, and a large vein, called vena magna Galeni, which brings back the blood from the choroidplexuses and interior of the ventricles: it also receives, at its under surface, the superior veins of the cerebellum. It opens behind into the bifurcation of the superior longitudinal sinus; sometimes having a double termination.

The superior petrous sinus runs along the sharp ridge of the petrous portion, at the attachment of the tentorium, and opens into the lateral, just where that begins to descend from the tentorium. Besides some small meningeal veins, it has some from the anterior lobe of the cerebrum, and from the cerebellum.

The inferior petrous sinus is larger than the preceding, and runs in the junction of the bifairy processes of the occipital bone and the petrous portion of the temporal. Its anterior end joins the cavernous sinus, while the posterior opens into the lateral sinus, just before it enters the foramen lacerum. The right and left are united by one or more transverse communications on the basiary procys. This transverse communication unites the two inferior petrous sinusæ just where they communicate with the cavernous: it is placed at the anterior end of the basiary procys, is broad, and is defended by Bichat to contain the fame kind of cellular substance as the cavernous sinus.

The cavernous sinus is a large, complicated, and altogether the most remarkable of the cerebral sinusæ. It occupies the side of the sphenoid bone, reaching behind to the fissure which separates the end of the petrous portion from the sphenoid, and in front to the foramen lacerum: above, to the summits of the clinoide processes, and below, to the openings through which the nerves of the fifth pair pass. The dura mater, in this situation, is divided into two layers, one of which adheres to the bone, as in other situations, and forms the internal side of the sinus; the other, which is much thicker, forms its external side, and is part of the internal surface of the cranial cavity. In this latter layer the nerves of the third, fourth, and fifth pairs are placed, contained in sheaths of the membrane. The interval of the two layers is occupied by a soft kind of filamentous cellular substance, through which the nerve of the fifth pair and the internal carotid artery pass. The opthalmic veins, returning the blood from the orbit, opens into this sinus, which receives also meningeal veins, and communicates with the veins on the side of the basci cranii.

The cavernous is the most complicated of its structure, and altogether the most remarkable of the cerebral sinusæ.

The circular sinus is a small one occupying the superior aperture of the sella Turcica, and describing a circular course round the edge of the pituitary gland. It communicates on each side with the cavernous; and it receives veins from the dura mater and the pituitary gland. The anterior or posterior semicircle, or even the whole sinus, is sometimes wanting.

Occipital Sinusae.—These are very small; they begin at the sides of the foramen magnum, run backwards and upwards, and open into the lateral sinusæ close to their origin. Anterior occipital sinusæ are described, communicating with the inferior petrof and the cavernous, and opening into the lateral near its exit from the head: they are not confluent.

For representations of the veins and sinusæ of the brain, see Haller, Icon. Anat. falce. 1 ; Vie d'Azyr, Traité d'Anat. et Physiol. avec des pl. color. pl. 33. 35. 36. Santorini, Tab. Photium. 3.

The meningeal veins, or veins of the dura mater, receiving innumerable ramifications from the surface of the cranium, form trunks, which accompany the arteries, and often on each side, being lodged with them in bony channels of the skull: these veins open into the sinusæ, particularly towards the basis of the skull, and they are said to communicate with the pterygoid veins.

Veins of the Eye.—(See Walter, Epipola Anatomica de Venis Oculi.)—The vena ophthalmica cerebralís begins about the internal canthus, communicating with the ophthalmica facialis, goes outwards and downwards behind the globe, and ends in the cavernous sinus. The following veins enter it; viz. vena nafalis, ethmoidalis anterior, infraorbitalis, ciliaris interna, ciliaris superior, lacrymalis, ciliaris posterior, ciliares longae, ethmoidalis posterior, centralis retinae. The arrangement and distribution of these veselís in the eye are described under Eye.

There are free communications between the external and internal veins of the head, in various situations, which have been already noticed; viz. at the parietal, the mastoid, and the
the posterior condyloid foramina. The veins of the orbit also constitute a communication between these two sets of veins, as they are connected on one side with the facial veins, and on the other with the cavernous sinus.

It appears from the preceding description, that all the sinuses end, either mediately or immediately, in the right and left lateral, and consequently that all the blood conveyed to the brain is returned by these veins. Having passed the foramen lacerum, the tube is called the internal jugular vein; it swells out into a dilatation received into the fossa jugularis of the temporal bone, descends perpendicularly along the neck, in company with, and on the outside of the internal carotid first, and, afterwards of the common carotid artery, and of the par vagum, with which parts it is encased in a common cellular sheath. Just behind the anterior extremity of the first rib it ends, by joining at a right angle the subclavian vein. The internal jugular is a very large vein; when diffused in the living subject, or by injection after death, it is nearly as large as the thumb. It receives the following veins; viz. the pharyngeal, the lingual, the common trunk formed by the union of the anterior and posterior facial, the suprarenal, and middle thyroid.

The external or superficial jugular vein is formed by two or three principal trunks, and by smaller branches, which form a kind of venous plexus on the side of the neck, covered by the skin and by the latissimus collae. These trunks are the occipitalis superficialis, which commences, in company with the occipital artery, from the integuments of the back of the head, and receives branches from the muscles of the neck; transversa collae, which accompanies the artery of the same name: deep-seated veins of the cervical muscles; subcutaneous veins towards the front of the neck; and smaller twigs from the flerino-nalfoideus and lymphatic glands. The trunk terminates at the angle of union of the internal jugular and subclavian, or in the subclavian itself. For the veins of the neck, see Walter's plates in the Observat. Anat. already quoted.

Veins of the Upper Extremities.—The arteries are every where accompanied by corresponding veins, which lie close to them, and are generally double, one on each side. These it is not necessary to describe. In addition to these, which may be called the deep-seated, there is a cutaneous set of veins in the fingers, fore-arm, and arm, forming large trunks placed merely under the skin, not accompanied by any arteries. Both the deep-seated and cutaneous veins end in a single large trunk, the axillary, which accompanies the artery of the same name.

The superficial veins of the fore-arm lie between the skin and the fascia, and form a venous net-work, composed of larger and smaller branches, over the whole limb. There is great variety in the size and arrangement of the trunks, which, however, are regular and constant in the arm. The digital veins run into trunks at the backs of the fingers, completely covering them after successful injection; they form a plexus (dorfolis manus) on the back of the hand, from which a large trunk (cubitalis interna, or ulnaris superficialis) or two, with smaller ramifications, run in the course of the ulna to the elbow. It pales over the tendon of the biceps, and assumes the name of basilic vein; ascends along the arm, on the inner edge of that muscle, in company with the brachial vein, and enters the axilla, where it ends in the axillary vein.

A large vein on the back of the hand, arising from the little finger, was called by the ancients fetus. A venous plexus arises from the thumb, of which the largest branch is sometimes called cephalica pollicis: this Vol. XXXVI.

plexus, containing one or two larger trunks, (radialis externa, or cephalica minor,) is continued along the radial side of the fore-arm to the bend of the elbow, where it divides into two branches; the largest, under the name of median vein, passes obliquely in front of the joint to join the basilic vein; the other is called the cephalic, (cephalic major,) ascends on the outer edge of the biceps, runs in the cellular interval between the pectoralis major and deltoid to the edge of the clavicle, then dips under the bone, and ends in the axillary vein.

There is considerable variety in the median vein, which is sometimes merely an oblique communication between the basilic and cephalic: in other instances, a large branch comes from the middle of the fore-arm, (mediana communis,) and divides at the elbow into two trunks, which separate like the branches of the letter V, and join, one the basilic, and one the cephalic. These branches are then called vena mediana basilica, and mediana cephalica. There is always a large communication at the elbow, between this median vein and the radial and ulnar veins.

The axillary trunk, in which all the veins of the upper extremity end, is placed in front of its corresponding artery, on the side and anterior part of the chest; pales in front of the anterior sacleans muscle, then taking the name of subclavian, and ends at the extremity of the first rib, by joining the internal jugular at a right angle. In this angle the thoracic duct ends behind, on the left side; and the minor trunk in front, on the right side.

For representations of the veins of the upper extremity, see Camper, Demonstrationes Anatomico-Pathologicae, lib. 1. Klint de Nervis Brachii.

The axillary trunk receives the superior and inferior thoracic veins, the external and internal sceleular, the dorfolis sceleular, the vertebral, and the superior intercostal vein.

The trunk of the latter accompanies its corresponding artery in the transversa processes of the cervical vertebrae, commencing about the foramen magnum, and receiving numerous branches, of which the most remarkable are from a large plexus of veins lying close on the vertebrae before and behind, and connected with the transversa collae, the occipital, and the internal jugular veins, from the sinuses of the medulla s沿途nas in the neck, (circuli venosi cervicales medullæ s沿途nas,) and communicating with the cerebral veins, at the foramen magnum. The vertebral and superior intercostal veins end in that part of the trunk called subclavian.

The right superior intercostal is sometimes deficient; that is, the veins of the two or three superior intercostal intervals, instead of uniting into a separate trunk, join the vena azygos. The left is always a considerable vein, formed by the veins belonging to the five or six superior intervals, which join into a trunk ascending on the left side of the vertebral column, receiving the left bronchial vein, and some other small branches.

The subclavian vein, having received the internal jugular, descends on the right side almost perpendicularly, and on the right of the artery innominata, receives the internal mammary vein, and very soon receives the left subclavian at a right angle. It now takes the name of superior or descending vena cava, continues its course in the same direction, receives the vena azygos from behind, and after a farther perpendicular descent of about an inch, having penetrated the pericardium, terminates in the right auricle.

The left subclavian vein crosses the chest, immediately behind the upper edge of the first bone of the sternum, and in front of the trachea and primary branches of the
aortic arch, proceeding transversely from left to right, and joining the right subclavian above the pericardium, as already described. It receives in this course the left internal mammary, the median, thymic, superior pericardiac, and inferior thyroid veins.

The internal mammary vein accompanies the artery. The thymic veins are connected with the mediastinal, pericardiac, &c. They end either in the subclavian, internal mammary, bronchial, superior intercostal, or thyroid.

The superior and posterior pericardiac veins generally end in the subclavian; but they may terminate in the bronchial or internal mammary. The vein accompanying the left phrenic nerve ends in the bronchial; on the right side, in the internal mammary.

The vena azygos returns the blood from the parietes of the chest, except in so far as the superior intercostal veins are concerned, which, as we have already described, join the subclavian. This vein connects the superior and inferior veins of the body: for its inferior ramifications anastomose with the lumbar or other abdominal veins. Hence, where the inferior vena cava has been obstructed, the blood has found its way through the vena azygos into the superior.

The minute origins of the vena azygos on the right side of the body are connected with the vena cava, the lumbar, or the renal veins. The trunk, at this part small, enters the chest, either with the aorta, or through an interval in the right crus of the diaphragm. It ascends on the right side of the vertebral column, in front of the right intercostal arteries, covered by the pleura, with the trunk of the aorta on its left, and the thoracic duct in the cellular substance between it and that artery, receiving the intercostal veins, and increasing in size. About the third dorsal vertebra it quits the spine, passing forwards over the right bronchus and pulmonary artery, receiving the right bronchial and some axillary veins, and of a considerable size, and opens into the back of the superior vena cava.

The intercostal veins, which it receives in its course, accompany the arteries of the same name, and return the blood from the intercostal muscles, and those of the back, from the intercostal muscles, from the vertebra, pleura, intercostals, &c. The vena azygos receives a large branch from the left side, called the hemi-azygos. This begins by roots, which communicate with the abdominal veins, from a trunk entering the chest through the diaphragm, ascending on the left side of the chest, receiving four, five, or more left inferior intercostal veins, and then crossing to the right side, to join the trunk. Sometimes the hemi-azygos joins the common trunk by two or three branches; sometimes it is not formed, and the left intercostals proceed straight to the right side. See Würfberg, Observat. Anat. de Vena azyga duplici, aliique hujus vene varietatis. Goetting. 1778.

III. The inferior Vena Cava.—The veins of the lower extremities, of the pelvis, and the abdomen, terminate in this trunk.

The veins of the lower limb of the upper extremity, confluent of a deep-seated fat accompanying the arteries, and therefore not requiring a separate description; and a superficial order, covered only by the skin, and intervening between it and the fascia. The femoral vein is the common channel for the blood of both those systems of veins.

The superficial veins of the leg comprise two principal trunks, called the phrenes: there is indeed, as in the upper limb, a plexus covering nearly the whole of the foot and leg, of which the different branches every where communicate.

The phrenes externa or minor arises from the veins plexus of the sole and back of the foot towards the outer edge; it runs below and behind the outer ankle, then rises over the calf, and having frequently communicated with the deep-seated veins, terminates in the trunk of the popliteal.

The femoral vein passes under the crural arch, on the outside of the corresponding artery, and continues in company with the artery, under the name of the external iliac, along the side of the ploos magnus, until it meets with and joins the internal iliac or hypogastric vein from the pelvis, at the sacro-iliac joint, or the point where the common iliac artery bifurcates into its external and internal branches. Immediately above the crural arch, the external iliac receives the epigastric and circumflex iliac veins.

The internal iliac or hypogastric vein is made up by the union of venous trunks, corresponding to the various arteries which are given off from the internal iliac artery. These veins accompany their respective arteries; but they are remarkable for forming thick and intricate plexuses, which surround the prostate, vesical femorales, neck, and fundus of the bladder, urethra and vagina, and rectum.

A large vein runs along the back of the penis, in its middle, between the two arteries dorsales, and returns the blood from the glans, corpus spongiosum, bulb, and corpora cavernosa. It passes under the arch of the pubes, and divides into a right and left branch, which run into the plexus about the prostate and vesical femorales.

The superficial veins of the penis and scrotum find their way under the arch of the pubes, communicating with the internal pudic vessels, and end in the plexuses about the neck of the bladder.

They are united on the outside with branches of the femoral vein, and of the femoral. The prostate and vesical femorales, the lateral and inferior parts of the bladder, are covered by numerous ramifications of a dense plexus, from which the trunks of the vesical veins convey the blood to the hypogastric.

The veins in the labia are numerous, and communicate frequently: these and the veins of the clitoris pass under the arch of the pubes; the front of the vagina and urethra are covered by a thick plexus, which is the common termination of the external and internal pudic vessels. These plexuses envelope the sides of the vagina, the anterior, lateral, and inferior parts of the bladder, and end in the vesical veins.

The external hemorrhoidal veins end in the pudendal; the middle occupying a space of three or four inches, and united with the plexuses already mentioned, join the hypogastric. These latter then are interposed between the internal hemorrhoidal, which joins the vena portarum, and the external, from which the hemorrhoidal flux proceeds.

Large veins proceed from the vagina and uterus to the internal iliac: there are also the lateral facoral veins, corresponding in number to the facial foramina, out of which they proceed, and united with the middle facoral vein. The other vessels contributing to the hypogastric vein are, the obturatrix, ischiatic, pudenda communis, glutea, ileo lumbaris.

The primary or common iliacs, formed by the junction,
at nearly right angles, of the external and internal, are very
conflable venous trunks, differing lightly on the right
and left sides of the body. The right is much the shorter,
and proceeds obliquely behind, and rather above its cor-
responding artery. The left, placed behind and below the
left common iliac artery, proceeds obliquely upwards and
towards the right, across the front and upper part of the
faccrum; then goes between the fifth lumbar vertebra and the
right common iliac artery, to join its corresponding vein,
at an acute but open angle, on the right side of the vertebral
column, at the interval between the fourth and fifth lumbar
vertebrae; forming by this union the great trunk of the in-
terior or ascending vena cava.

One or two lumbar veins sometimes join the common iliac.
The facra media, a small vein, terminates, either at the
angle of union, or in the left common iliac.

The inferior vena cava lies at its origin, close to the aorta,
on its right, and on the right side of the vertebral column: it ascends in the same relative position, first con-
ected to the spine, then to the right crus of the diaphragm,
but more and more distant from the aorta, as it rises higher
in the body. It leaves the vertebral column towards the
upper part of the abdomen, and enters a deep sulcus in the
posterior or thick edge of the liver, which covers two-thirds,
and sometimes the whole vein. From the joints upwards the
size of the trunk is considerably increased: it will easily ad-
mits a large thumb. Quitting the liver, it penetrates the
tendon of the diaphragm (see DIAPHRAGM), and imme-
diately opens into the right auricle of the heart. (See Heart.) In its passage it receives the following veins.

1. The facra media has already been mentioned.
2. The lumbar veins correspond to the arteries of the
same name, and return the blood from the parts supplied by
those vessels. They form about four trunks on each side,
which end in the lateral and posterior part of the inferior
cava.

3. The splanchnic veins. They come from the vessels in
the male subject, from the uterus and ovaria in the female;
receive various branches from the ureter (ureterice), fat of
the kidney (adipofe), &c. and communicate with veins in the
mesentery and mesocolon; form first a considerable
plexus, with several trunks communicating together, and
afterwards a single vein, which ends in the front of the vena
cava on the right side, and in the renal vein on the left.

4. Renal or emollient veins. Of these large trunks, the
right is much shorter than the left, on account of the re-
ative position of the vena cava and the kidneys. The latter
crosses the vertebral column in front of the aorta. There
are rarely more than one on each side.

5. Capillary veins. These often end in the renal, par-
cially on the left side, otherwise they terminate in the cava.
6. Hepatic veins. They are numerous, and of different
sizes. Usually there are from three to five large ones, and
several smaller. They return the blood of the vena portae
and that of the hepatic artery.

7. Inferior diaphragmatic veins; accompanying the ar-
teries, and ending either in the cava, or in an hepatic vein.
Soemmering rates that some diaphragmatic veins join the
vena portae.

Besides the works to which we have referred in the course
of this article, for plates illustrating particular veins, we
may refer in general to the Fasciculi of Haller, to the plates
of the veins in Loder's collection, and to Mayer's Anatomische
Befchreibung der Blutgefässe des menschlichen Körpers;
mit kupfern, 1788, 8vo. See also Walter Angiologisches
Handbuch, 1779. Soemmering, De Corporis Humani
Fabrica, t. 5. Bichat's Anatomie Descriptif, t. 4.

VEINS, Disposés of the. Veins (says Mr. Hodgson) are
liable to all those morbid changes which are common to soft
parts in general; but the membranous lining of these vessels
is peculiarly susceptible of inflammation. When a vein is
wounded, the inflammation, which is the effect of the injury,
sometimes extends along the lining of the vessel into the prin-
cipal venous trunks, and, in some instances, even to the
membrane which lines the cavities of the heart. This inflam-
mation sometimes produces an effusion of coagulating lymph,
by which the opposite sides of the vein are united so as to
obliterate the tube. In this manner, a great extent of the
vein is occasionally converted into a solid cord. In some in-
stances, the secretion of pus into the cavity of the vein is
the consequence of inflammation of the membranous lining
of veins: under these circumstances, the matter is either
mixed with the circulating blood, or the inflammation, having
produced adhesion of the sides of the vein at certain inter-
vals, boundaries are formed to the collections of pus, which
in this manner form a chain of abscesses in the course of the
vein.

When the inflammation of veins is not very extensive, its
symptoms are the same as those of local inflammation in gen-
eral; but when the inflammation extends into the principal
vein, the trunks, and pus is secreted into the vessel, it is
accompanyied with a high degree of constitutional irritation,
and with symptoms which bear a striking resemblance to
those of typhus fever. See Hodgson's Treatise on the Dis-
exes of Arteries and Veins, p. 511, 512.

In the first volume of the Transactions of a Society for
the Improvement of Medical and Chirurgical Knowledge,
Mr. Hunter has published an extremely interesting paper on
the subject of inflammation of veins, and he has particularlyad-
verted to that common cafe, an inflamed arm after bleeding.
By force, he observes, this complaint has been imputed to the
wounding of a tendon; by force, to the injury of a nerve;
and by others it has been ascribed to a bad constitution.

Mr. Hunter expresses his doubts of the accuracy of these
opinions, and he remarks, that the manner in which these
fore arms come on, plainly proves that they arise from the
wound not healing by the first intention; for, in most
cases, the external wound first fettles or inflames, and
then suppures or ulcerates, the cavity of the vein be-
coming subfrequently impervious. In some instances, this
suppuration is only superficial, the vein and parts below
having united. In other examples, the skin appears to be
united, but not close to the vein, so that a small ab-
seces forms between the vessel and the integuments. This
burst and discharges a thin watery fluid, and no further
mischief happens. When, however, this imperfection of
union is continued on to the cavity of the vein, this vessel
inflames both upwards and downwards, frequently in a con-
fiderable extent, and the surrounding parts join in the
inflammation.

We find, says Mr. Hunter, all these variations in different
cases. Sometimes the disease goes no further than an in-
flammation near the orifice of the vein, and the case often
ends in resolution. At other times, the inflammation is
carried further, but suppuration is prevented by the adher-
vie inflammation taking place in the affected portion of the
vein, and, in such cases, the veins may be plainly felt, like hard
cords, after the surrounding tumefaction has subsided. But
this salutary effect is not always produced; and suppuration
in the vein is the consequence, but often in fo limited a de-
gree, that only a small abscess forms in the cavity of the
vein, near the puncture. The confinement of the matter in
this part of the vein, arises from adhesions in the vessel, a
little above and below the orifice. But, in many cases,
adhesions do not occur; and then the inflammation and suppuration are not confined to the vicinity of the wound. On the contrary, an abscess is frequently produced, occupying a considerable length of the vein in both directions; and, says Mr. Hunter, we often have more than one abscess; nay, sometimes there is a series of them, generally in the direction towards the heart; but not always in this course; for, occasionally, these abscesses are observed between the orifice in the vein and the extreme part of the limb.

In consequence of a wound in the foot, Mr. Hunter saw the vena saphena inflamed all up the leg and thigh, nearly as high as the groin; and he was obliged to open a chain of abscesses, which reached nearly the whole course of the vessel.

In cases in which the inflammation had been violent, and in which the opportunity of examination was afforded, Mr. Hunter found the inflammation at some distance from this violence in the adhesive state; in some places, the sides of the vein were adhering; and, in others, the inner surface of the veins was covered with coagulable lymph. When different abscesses had formed, he always found, that the spaces of the vein between them had united by the adhesive inflammation, and it is this union which circumferes such abscesses.

In examining the arm of a man who died at St. George's hospital, Mr. Hunter found the veins, both above and below the orifice, united in many places by the adhesive inflammation. He also found in many parts of the veins the commencement of suppuration, without ulceration having actually begun; while, in several other places, ulceration had occurred, and destroyed the surface of the vessel next the skin, a circumfered abscess being produced. The vein near the axilla was in a state of suppuration; and as no abscesses were formed beyond the part affected, Mr. Hunter conceived that the matter had palled freely into the circulation, and most probably been the occasion of the man's death.

When larger abscesses had come on than those arising from the ulceration of the wound of the lanceet, Mr. Hunter always found that the vein was afterwards obliterated, having united and healed up as any other cavity does, so that the patient could never be bled in the same vein again.

Inflammation of a vein is a common effect after bleeding horses, which is to be ascribed to the careles and rough manner of closing the puncture with a pin. Mr. Hunter has seen the jugular veins of horses inflamed through their whole course, the swelling extending to all the side of the head, and the inflammation reaching even to the 'cheek. In these cases there is always an abscess formed at the wound, and often several along the vein, as in the human subfeet; and whenever the complaint is carried as far as this stage, the vein is rendered for ever afterwards impervious. Many horses die of this disease; but what is the particular circumstance which occasions their death, Mr. Hunter was not able to determine. It may (says he) either be that the inflammation extends itself to the heart, or that the matter secreted from the inside of the vein passes along that tube in considerable quantity to the heart, and mixes with the blood.

Although the operation of venesection, which is the most frequent cause of this complaint, is to appearance trifling, yet, as it is often of very serious consequence, both to the life of the patient and the character of the surgeon, the operator should use the utmost care to prevent an evil of such magnitude. He should be particularly attentive to the mode of closing the wound and binding up the arm. This is to be done by bringing the two sides of the wound togeth-
rather than veins, are most apparent in the calyx of many plants.

Veins, Metallic and Mineral, in Geology, are fissures intersecting rocks or strata, filled more or less completely with mineral or metallic matter, different from the substance of the rock. When veins are seen on the surface intersecting or traversing a mountain, they have been supposed to resemble the veins of animals; but the resemblance is only superficial, for veins are not tubular, except in a few instances; but their thickness is small, compared with their length and depth.

Metallic veins are the principal repositories of most of the metals, except iron and manganese, which occur more frequently and abundantly in beds than in veins. The thickness of metallic veins varies from a few inches to several feet or yards: the same vein varies also in thickness in different parts of its course, sometimes contracting to a narrow finger of ore, and then expanding again to the width of several yards. The depth to which they descend is unknown, for we believe no instance has occurred of a considerable vein being worked out in depth, though it may sink too deep to render the operation of the miner profitable; or it may branch off in a number of branches, which are too much intermingled with the rock to be worked to advantage. In cases where the metallic ores have disappeared at considerable depths, the veins are still continued, though they are filled exclusively with the mineral matter or vein-flone which accompanied the ore in the upper part of the rock. Some veins appear to grow wider, and others to contract as they descend. The direction of veins downwards inclines more or less from the perpendicular; but they sometimes run for a certain distance parallel with the dip of the beds or strata in a mountain, and then strike down through the lower beds.

The length of metallic veins has rarely, if ever, been accurately determined; they have frequently been traced several miles, but their further progress has been concealed by the intervention of valleys, rivers, or accumulations of sand and alluvial deposits. Some of the metallic veins in South America have been traced to the distance of eighty miles. Large veins generally take a nearly direct line through a country, except where they are turned aside by cross veins, or what are called in Cornwall cross courses; it is also remarkable, that the metallic veins in England generally run nearly east and west, and the cross courses north and south. To what cause this is owing we are perfectly ignorant. Large metallic veins frequently send off smaller veins, or fingers of ore, from their sides, which penetrate the rock to a considerable distance on each side of the large vein. Veins are seldom entirely filled with ore, but sometimes it extends in a compact mass from one side to the other. More frequently, the ore is intermixed with mineral matter called vein-flone, matrix or gangue: this, according to the rock which it intersects, will be either calcareous fpar, fluor fpar, barytes or quartz. The vein-flone and the ore are frequently arranged over each other, lining the sides of the vein with alternate layers of metallic and mineral matter, and filling up the whole vein. In the mines of Cornwall, the ores of copper and tin commonly occur in detached masses, which are called bunches of ore; and the other parts of the vein, being unproductive, are called deads.

The vein is generally separated from the rock which it intersects by a thin layer of mineral matter distinct from the vein, and from the rock itself, and also by a thin lining of clay. Sometimes there are large cavities in veins called drafets, which are generally lined with crystals. In other instances the vein divides, including a piece of rock, which is called the rider; but it is observed, that the inelosed masses, or riders, differ in its quality from that of the rock through which the vein passes.

The superficial part of a vein generally contains the ore in a decomposing state; and it frequently happens that the ores in the upper and lower part of the vein are different: thus in Cornwall, blende, or the sulphuret of zinc, often occupies the uppermost part of the vein, to which succeeds tin-flone, and at a greater depth, copper pyrites. See Zinc, Tin-Stone, and Copper.

When Mr. Pryce wrote his "Mineralogia Cornubiana," the mines of Cornwall had not been worked to a great depth, for he says the richest flone of a mine for copper was from eighty to one hundred yards deep, and for tin, from forty to one hundred and twenty yards. This account by no means corresponds with the present state of the Cornish mines. The Doleouth copper-mine, near Redruth, is worked to the depth of four hundred and fifty-fix yards, and is very productive at that depth.

Veins generally decline from the perpendicular, and descend into the earth obliquely. The fides, or, as they are called, the walls or cheeks of the vein, are differently denominated, the upper side being called the hanging-fide, the up-check, or hanger; and the under side, the back-fide, the down-check, or the ledger. The veins we have been describing are called rake-veins in some parts of England, and in Cornwall, they are denominated bides; which see. These metallic veins have commonly the same direction, or nearly so, in the same district, and the veins which cross them are generally unproductive, or contain metallic ores of a different kind. They are called cros courses, or north and south veins.

Metalliferous rake-veins intersect most of the mountains called primary, such as granite, gneifs, and mica-flone. (See Granite, &c.) But they are more abundant in flat-rocks than in rocks of granite or porphyry. (See Granite, Slate, and Porphyry.) They also intersect the rocks of transition and mountain lime-flone, which rest upon flate, or alternate with it; but they rarely rise into the secondary strata which contains coal. This fact seems to prove that veins were formed prior to the deposition of the upper secondary strata. When a metallic vein in its descent passes through different kinds of rock, it is frequently observed that the products of the vein vary in each bed; and when it passes through regularly stratified beds of the same rock, there are particular strata in which the veins are always found most productive, and these in the north of England are called bearing measure. If the nature of the rock seems to have produced a change in the quality of the ore, it is in less remarkable that the rock itself is also frequently changed or decomposed in the immediate vicinity of a vein. This change is more apparent in some rocks than in others, particularly in granite, gneifs, gneifs, mica-flone, argillaceous schistus or slate, and porphyry. In such instances, according to Werner, it is only one of the component parts of the rock that is decomposed, either the feldspar, the hornblende, or the micas, but never the quartz. This change sometimes extends to a considerable distance of each side of the vein, even to a fathom or more; it extends farther in some places than in others, and is most general in those parts where the vein contains sulphur. Sometimes this change in the rock may be perceived so far, that it serves as a guide to the miner; and in following a fertile vein, when he comes to a place where the rock is decomposed, he concludes that the metallic ore will soon be found. In Cornwall, the feldspar is frequently changed in the vicinity of a vein, and tin-flone is sometimes differentiated through the rock to some distance on each side of it.
VEIN.

The crofs courses or veins which interfe6 the metalliferous veins, frequently occupy a considera6 ble a~ange­men in the po6ition of metalliferous veins, and, what is still more re­markable, occasion a change in the quantity or quality of their contents. When a vein is cut through by another, either in its line of bearing along a country, or crofes it by declining in a different direction, the vein which is cut through is superposed to be of more ancient formation than the vein which crofes and cuts through it; but it may be doubted, from various circumftances, whether many of these veins were not formed at the fame time with the rock itself, or were fffures paffing through the rock in different direc­tions, into which the various metallic fubftances were fer­ected, during its confolidation. To form a more difting­uifh idea of the structure of a vein and its interfe6 by crofs courses, we refer to Plate IV. Geology. Fig. 4, and a rep­resent a rake-vein defcending obliquely; b b, the rock; e, e, the walls or checks of the vein; d, an interpoing pie6e of rock, called the rider; e, e, the division of the vein into numerous small veins or ftrings of ore. If the fpae at d, which is superposed to be filled with rock, were empty, or filled with water, it would conftitute what is called a drufe; and it is in thes cayfies or drufes that all the moft beautiful and regular cryflallizations of the mine occur. Fig. 5, re­presents the fection of a vein containing a metallic vein through, and displaced by crofs courses or veins of another metal; aaa is a vein which appears to have been once con­tinuous, and contains tin; b b, b, represent different veins of copper, which cut through the former, and have upheaved the lower part, and brought them nearer the surface. In Plate II. Geology, fig. 10, re­presents the ground plan or horizontal fection of a plot of ground travefed by a vein and a crofs course; E. W. repre­fent the cafte and welf sides of the ground. It is in this direction the vein a a paffes, but it is cut through by the crofs vein b b, which has carried the welfer fide of the vein and the ground along the fide of the ftrata, to the north of its original position. Such a frafture and removal of the vein can only be conceived to have taken place by a lateral or horizontal motion of a portion of the ground. Such a motion has been frequently observed during violent earthquakes. For though the ground is heaved up­wards, the greater reftance which certain parts offer to this motion must occa6 a lateral pressure on other parts of the earth's surface, and to fuch a pressure we muft also refer the remarkable conftorions of the coal ftrata near Valenciennes. See Plate II. fig. 9.

Metallic veins frequently occa6 a displacement of the ftrata when they pafs through regularly ftratifed rocks; and it is ob­erved, that when this displacement is con­iderable, fo as to bring a bed of lime-flone on the fame level with a bed of fand-flone or slate, the vein is never fo produc­tive as when the oppofite fides or walls of the vein are in the fame kind of rock. See Plate II. Geology, fig. 8. where the different ftrata a, b, c, d, e, f, g, repre­fent different ftrata on each fide of a vein or fault. If d d, are sup­posed to reprefent parts of a vein or fault, the vein being broken by the vein, and g g a bed of fand-flone below the lime-flone, but brought on the fame level with it by the upheaving of the ftrata, in that part of the vein where the lime-flone, d, and the fand-flone, g, form the wall opposite to each other, the vein will be unproduc­tive, though in other parts of the district, when the vein paffes through the fame bed of lime-flone, on each fide of it, at the fame level, it will be remarkably produc­tive. These facts may be commonly ob­erved in the mining districts of the western parts of Northumberland and Durham, where the ftrata confi6 of different beds of mountain lime-flone, sand-flone, and slate. See Strata, under which article the fuccafion of the different beds is enumerated.

As crofs veins generally displace and injure the quality of veins, on the contrary, when cafte and weft veins in a district meet, by a flight variation in their direction or dip, the part where they join is frequently very rich in ore; and where a number of metallic veins crofs each other at the fame place, they frequently produce a large irregular conical mass of ore of vaf extent, from which the different veins diverge, like radii from a common centre. The main fhaft of such a vein, which Mr. Williams, in his Mineral Kingdom, calls an accumulated vein, "refembles," he fays, "the indi6 of a glafs-houfe; and the vaf capacity of this vein is frequently flored with a rich body of metallic ore, often imbedded in foft minerals fols; but the vein of this metal, where they join, diverge reftemile to the veins, or perpendicular mineral fffures. When the ore is worked out of an accumulated vein, it exhibits a frightful gulf, fomtimes fifty or fixty feet wide below, and is often worked down to a great depth from the surface." A number of thefe accumulated veins have been worked at Pike-Law, in the county of Durham. Crofs courses fometimes contain ore to a fmall distance from their junction with metallic veins, and in other situations they become fo rich as to be worked with advantage. The Botallock mine, on the sea-coaft near St. Juft, in Cornwall, offers a fhring illustration of this, though we believe its structure has not been generally known or understood. The vein which is worked is a north and fouth vein, varying in width from nine to twelve feet, and extending under the fea. The vein-flone is quartz, with a fmall quantity of flour fpar. It is found to contain ore of copper and tin in many parts where the cafte and weft veins enter it, and for thirty or forty fathom of the fea. This mine produces the richest ore of copper in Cornwall, the grey fulphuret yielding twenty per cent. of copper. It is de­scribed by Williams, that the metalliferous veins which enter this lode on the cafte fide and render it produc­tive, have never been found on the weft fide, fo that they appear to termi­nate in it. The rock near the great north and fouth vein is a soft killas or flate, but beyond this it is a very indurated flinty flate. This vein may properly be con­fidered as a crofs course, rendered rich in ore in various parts by a number of small veins which fall into it, like brooks into a large river where they are loft. The fitation of this mine is truly re­markable, at the foot of a precipitous cliff that overhangs the Atlantic ocean. If ever a fpot feemed to bid diftance to the ef­forts of the miner, it was this. At the very com­mencement of his labours, he was required to lower an im­mens steam-engine down a precipice of more than two hundred feet, with a view of extending his operations under the bed of the fea, where the workings are at prent con­tinued for feventy fathoms in length and fixty-five fathoms in depth. In thefe caverns of darknes, many human beings for a fmall pittance, and that even of an uncertain amount, are continually digging for ore, regardless of the horrors which surround them, and of the roar of the Atlantic ocean, whose boisterous waves are incessantly rolling over their heads. In some places the fea actually penetrates through; and it is worthy of obervation, that the water is deprived of a great portion of its salts; but whether this arises from fil­tration, or whether some portion of the fresh water from the land percolated through subterranean fissures in the rocks, we could not afermen when we vi{ited this fingular mine. If the filtration be more abundant after heavy rains, it would prove the intermixture of rain-water. The thin crofs courses filled with clay called flucean, heave the cafte and weft veins, and also hold up the water. The vein which is rich
in ore on one side of the flucan, will be poor on the other side. This fact, which we believe has not been sufficiently noticed, is well deserving attention, and would indicate that the presence of water affected the contents of veins.

Some veins contain little diversity in the nature of their contents, being filled principally with one kind of ore or vein-flone. Other veins contain a great variety of minerals, without any apparent regularity of arrangement: there are also numerous veins which have a regular structure, the different minerals being arranged in parallel layers, costing each other: the same succession of different minerals occur on each side and meet in the middle, filling up the vein, or sometimes leaving an empty space between. Thus calcaneous fpar, fluor fpar, barytic fpar, lead-ore, blende, and grey copper-ore, form different layers over each other in the same succession on each side of the vein. In the Botdock mine, before described, copper-ore is frequently found lining each side of the vein, and this is covered by tin; but in other parts of the mine the tin covers the walls, and is succeeded by copper.

*Irregular Veins.*—Befides rake-veins, which may be considered as regular, there are other veins which prehent a great variety of structure, and are called bellies, pipes, &c., according to their form. If a rake-vein be regarded as a tubular mass of mineral matter interfecting mountains; if this vein become irregular, and have its sides closed, or, as the miners call, twitched in, it forms what they denominate a pipe-vein, or mafs of ore and vein-flone sometimes of a tubular shape, de-\[-ing to a considerable distance like a pipe. In other infances, the sides are closed in both above and below, as well as on the sides, inclosing what the miners call a belly, or mafs of ore of considerable magnitude. Sometimes a small rib of ore is continued through that part of the rock where the sides of the vein are twitched in, until the vein expands again and produces another mafs of ore. In some infances there is no ore between, a rib of vein-flone or rider of clay being carried through the narrow part or twitch of the vein, but many of these twitches contain neither ore, clay, nor rider. In such cates, it becomes exceedingly difficult to follow the vein through the rock, to where it opens out again.

The veins in general do not close suddenly, but the sides gradually approach each other, and the ore terminates in the form of a wedge at the twitch.

These contractions or twitches are of various lengths, and no miner can tell, when the vein is so squeezed in, how many fathoms he must pass through before it opens again, unless the same twitch has before been cut through above or below the part where he is working. The intervening space between two mafs of ore is called a bar, and sometimes extends ten, twenty, or even a hundred fathoms or more; and when it is cut through, the ore makes its appearance, and begins gradually to widen and form another mafs or belly. When one of these bellies of ore proves pure and solid, it generally happens that all the contiguous bellies prove so in the same vein. According to Mr. Forfier, infances have been known of eight hundred hundred of ore being raised by fix miners from one of these bellies in the space of nine weeks.

When the matrix in these large bellies of ore is soft, the ore is generally found in a globular form, more or less irregularly imbedded in the flue materials, and these globular masses of ore are of various dimensions. It is no uncommon thing to find the soft openings in this kind of vein swell to an enormous width, so as to make it difficult to find the real sides of the vein. Working these veins is the most difficult part of mining, as there is no proceeding a foot without advancing timbers as far as they go, in the form of a passage in a houfe, compofed of two fide-polls, a lintel and a fell. The miners fand within this square frame, where they work and erec more timber as they proceed. It frequently happens that the ore is fo plentiful and rich in this kind of metallic repositary, as abundantly to compen-
and carbonate of lead, and has formerly been worked for the lead and copper, and more recently for the cobalt. Mr. Williams, in his "Natural History of the Mineral Kingdom," describes a singular stratum of flone near Lofouth, in the shire of Moray, of about eight feet thick, which is composed of several species of hard and fine flones of various beautiful colours. "This stratum is a kind of pudding-flone, in the composition which there is blended about an eighth part of good blue lead-ore or galena.

"This curious bed of flone is nearly horizontal, but dips away with an easy slope towards the north of the Moray Frith. The lead is found in larger and smaller grains and flowers, blended through the whole body and composition of the flone, in the same manner as the small mafles of agates and coloured cryfals, and other species of flone, are found blended through the whole body of the stratum."

Where metallic ore is thus intermixed with fragments of rock forming a conglomerate or breccia, it may probably be referred to the fame kind of metallic repository as fream-works, (see Strym-Works,) in which particles and mafles of ore are intermixed with fofe pebbles and fand, forming beds at the bottom of valleys, or on the sea-fhore, the metallic matter, as well as the pebbles, being derived from the diintegration of rocks containing metallic veins; but in the infance cited by Mr. Williams, the parts have become united, forming a folid stratum.

The manner in which metallic veins were filled with ore has greatly divided the opinions of geologists. George Agricola, a Saxon, who died in 1555, appears to have been the firft writer who had any diftinct knowledge of the structure of metallic veins, which he published in a work entitled "De Ré Metallica," and another work entitled "Bermanus." His theory of veins is in some refpects similar to that of Werner, which has lately excited much attention. According to Agricola, the rents or fiffures which are filled with metallic matter were partly formed at the fame time with the rocks themselves, and partly afterwards, by the waters penetrating the fover parts; fo that where there has been a larger quantity of water, or where the fubflance of the rock has been much softened, there the largest fiffures occur. With refpect to the earths and flones found in veins, he conceives the former to have been detached from the rocks and carried into the veins by water; the latter he considers as arising from the earthy matter, hardened partly by change of temperature and partly by a lapidifc juice. Minerals and metals he regards as being deposited from a folution in water, containing the earthy parts intimately mixed and combined with it in certain proportions. The folution of these mineral fubflances he conceives to have been greatly promoted by heat, on the abftrac of which they allumed their preffent folid form; the precious metals being the reful of a more pure and perfect folution.

Becher, in his "Phylica-Subterranea," published in 1669, afcribes the formation of metals and minerals to certain subterraneous vapours which arife from the bowels of the earth, and penetrating the fubflance of veins, produce a peculiar change in the earthly or ftony matter they meet with. He regards the earth as a hollow body, filled with clay, water, fufpufeous and bituminous fubflances, from which arife certain exhalations that form the metals. The celebrated German physician Stahl, confiders veins, as well as the fubflances they contain, to have been formed at the fame time with the earth itself, and of course as being contemporaneous with the rocks they interfet; but he is disposed to attribute some effeét to the action of air and other caufes.

Henkel, in his "Pyritologia," has given an ingenious theory of the formation of metallic veins, which has been adopted, with certain modifications, by fonie later geologists: he attributes the formation of ores to a peculiar exhalation produced and engendered by fermentation, supposéd by him to take place in the interior of rocks. The basis of each ore and mineral he supposés to exift in the fubflance of the rock, and by a peculiar procefs of nature it is matured and converted into the metal. He does not venture to afcertain the nature of these bafes, but in one passage he treats of subfte earths, in another of mercurial, arfénical, and fulphureous parts. These three last he probably confidered as conffuent parts, and the metals as com pounds. Air, water, and fire, are fubflances, according to this mineralogist, of which Nature avails herself in the formation of metals. He also supposés certain kinds of earths and ftones to exift, which ferve as the matrix for others, and which are indifpenfably neceffary in the formation of minerals.

Zimmerman, the pupil of Henkel, is the firft mineralogist who confiders veins to have been formed by a tranformation of the fubflance of the rock. Minerals, he fays, are undoubtedly formed in the rock; but daily experience fhes that the rock is not of itself capable of forming a metal, for were the mineralizing principle capable of converting it into a metal, we fhould find whole mountains which had undergone this change. But this change is only met with in certain directions, where the part of a rock, being thus transformed, contains veins. And he supposés that these vegetes or ftones, which have not suffered an entire change, or when they do not contain perfect metals, are fyll of a different nature from the rest of the rock. An attentive examination will fhew that they are of a decomposed and friable nature, appearing to have a tendency to return to this natural earthly flate, from which we may conclude that these veins were originally the fame as the rock, but that their texture had been altered and decomposed by fome particular saline fubflance, which penetrating the rents and fiffures, and had rendered them fit to be transformed into minerals.

Before noticing the theory of Von Oppel, which has since been adopted by Werner, we shall flate the opinions of thofe geologists who, with Henkel and Zimmerman, oppofe that veins have been filled by local caufes which may still continue to operate; whereas Von Oppel and Werner confider that they were formed by a general caufe, the operation of which ceased before the preffent flate of the globe. Lehman, in his treatife on the matrices of metals, published in 1755, fays, "the veins which we find in mines appear to be only the branches and fhoots of an infinite root which has been at a prodigious depth in the bowels of the earth, but in confequence of its great depth we have not been able to reach the trunk. The large veins are its principal branches, and the inferior ones the twigs. What I have faid," he adds, "will not appear incredible, when we confider that the bowels of the earth are, according to every obfervation, the workhoufe where Nature carries on the manufacture of the metals; that, from the beginning of the world, flie has been working at, and elaborating their primitive particles; that these particles infus forth, in the form of vapours and exhalations, to the surface of the globe through rents, in the fame manner as the fap fifies and circulates through vegetation by means of the vellels and fibres of which they are compofed."

The latter part of the theory of Lehman, which oppofes that changes are now taking place in the interior of the globe, by which metallic ores are flill forming, has been supported by many geologists, who have had opportunities of extensive obfervation. Mr. Von Trebra, sub-director of mines in Saxony, in his work entitled "Observations on the Interior of Mountains," advances a theory nearly fimilar to that of Zimmerman, and agreeing in part with Lehman.
VEIN.

From the third letter of that work we make the following extract.

"In explaining the phenomena which are observable in the interior of mountains (it must however be remembered, that I do not include such as are evidently of volcanic origin), I do not avail myself of those great causes which, by their magnitude, the fuldenners of their action, and by their effects, produce sudden changes which take place under our eyes, such as subterranean fires, earthquakes, and the like. I refer these phenomena to natural causes, which, though less evident and slower in their operation, are not less certain of producing a radical transformation. Of this kind are putrefaction and fermentation. It is of little consequence by what name we distinguish this peculiar action exerted by Nature in the mineral kingdom; it consists in an interstitial motion in the central parts of the globe, and appears to be produced by water combined with heat in different degrees of intensity. I observe such changes still going on, and can conceive them to continue so long as the same series of operations exist in nature. I am persuaded that there is constantly going on in our mountains a variety of transformations, compositions and decompositions, which not only take place at present, but will continue to the end of time.

"Fermentation, if I may be allowed to call by that name this quality which acts by insensible degrees, produces the most perfect transformations in the bowels of the earth; fermentation I say may, according to my theory, alter the entire mass of a mountain; it may convert granite into gneiss, as this last only differs from the former in its structure, which is flat or schistose; gneiss indeed has no other distinctive character than its structure, namely, the regularity and parallelism of its beds, and in some places a decomposed felspar approaching to clay. This fermentation may also convert greywacke into an argillaceous sluit, which last may again by induration become jasper, when this process is either diminished or stopped. By it, also, quartz may be converted into clay, calcareous intervals into quartz, and the whole mass of a mountain into inflammable or saline matter, or even into ores, metals, or fennemets. To it I ascribe the power of producing, preserving, and continuing to form the different beds and mineral repositories, which are found both in primitive and felsitz mountains: finally, the effects which the waters produce in filtering from above to below, and which in their passage through the different rocks may undergo some peculiar modification, appear to me the principal cause why this fermentation may act with more force in one part of the face of the mountain than in another."

Patriz, a celebrated French mineralogist, considers the changes taking place in the mineral kingdom, as effected by a processes somewhat similar to secretion in the animal and vegetable kingdoms, and ascribes a kind of mineral life to the earth itself, differing perhaps as much from vegetable life as the latter differs from that of animals. According to this theory, each kind of mineral subsistence is capable of converting malleable matter into its own peculiar nature, as animals convert their aliment into flesh and blood. Whatever may be thought of this theory, we believe that those who are most practically conversant with the various phenomena and transformations which occur in mines, will readily admit that many changes are taking place, which cannot be explained on any known chemical or mechanical principles, and which bear a strong resemblance in their effects to the processes of secretion. Nor can it, even in the present state of chemical science, appear improbable that the different earths and metals may be converted into each other by natural procetces. The different beds of rock intermixed by metallic veins are themselves metallic substances combined with oxygen; or, in other words, all the rocks and strata which form the earthy parts of the globe, confit of oxygen combined with metallic bases; and as these metallic bases may perhaps be compounded of the same elementary parts united in different proportions, the transmutation of one earth or metal into another, may be effected by a simple change in the arrangement of the elementary molecules.

The theory of veins propofed by Von Oppel, and in part supported and extended by Werner, supposes veins to have been fissures originally formed by the defecation of mountains, and the shrinking in of the mafis. These fissures, being open at the top, were afterwards filled with their contents by metallic solutions poured in from above. Mountains, according to Werner, have been formed by a successive accumulation of different beds and veins, piled one over another. "The subsidence of these beds was at first violent, and possessed little solidity; so that when the accumulation of matter had attained a certain height, the mafs of the mountain yielded to its weight, and mift consequtently have sunk and cracked. As the waters which inflit in supporting the mass began to retire, and lower their former level, these mafses then left their support, and yielded to the action of their weight, opening, and falling to the side where the least resistance was opposed. The shrinking of the mass of a mountain produced by defecation, and still more the fractures by earthquakes, and other similar causes, may also have contributed to the formation of fissures.

"The same precipitation, which in the humid way formed the strata and beds of rock, furnished and produced the subsidence of veins. This took place when the solution, from which the precipitation was formed, covered the existing rents, which were as yet wholly or partially empty, and open in the upper part. Veins, whether considered as rents, or as the substance constituting the vein, have been produced at very different times; and the antiquity or relative age of each can be easily determined."

"Such, in Werner's own words, are the great outlines of his theory, a theory which we conceive to be decidedly opposed by all the most striking appearances existing in the mineral kingdom, and equally opposed to the simplest known and acknowledged laws of nature. If metallic veins were once open fissures, filled by precipitations from a solution that covered the whole globe, with the highest mountains in which metallic veins are found; it is obvious that these metallic precipitations would be most considerable in the lower parts of the surface, in valleys and plains, where the fluid must have been much deeper than on the summits and sides of mountains. We ought, therefore, to find thick beds of metallic matter covering and involving the low and level parts of the globe; but nothing is more rare than to find beds of metallic matter in low places. Where beds of metallic matter exist, it is always in comparatively high countries, abounding in veins; and it is much more probable that the beds and veins were formed by local causes, and not from a solvent covering the whole globe. The metallic parts of this metallic ocean must have poiffued the greatest specific gravity, and instead of floating on the top of the fluid, to be deposited in the fissures at lofty mountains, it would have descended by the laws of gravity, forming cruts of different degrees of thickness from the bottom to the top, increasing downward. The reverse of this is the fact. It is principally in alpine difficulties, and at enormous heights, that metallic matter is accumulated in the greatest abundance. It is in the height of the Cordilleras of Peru that the productive veins of Potosi are situated: it is in the same chain of mountains, more or less
than 14,000 feet above the level of the sea, that the prodigious mass of mercurial ores is found at Guanac Velica, where, in the space of two centuries, more than 15,000 quintals of this metal have been procured.

But the facts most opposed to the theory of Werner are those which we have stated, namely, that when a metallic vein passes through different strata, the mineral suffilances it contains generally vary in each stratum, either in kind or quality. Sometimes an entire change takes place, as from tin to copper or lead; in other instances, the vein will contain the same kind of ore in the different strata, but it will be invariably richer or poorer in some of the strata than in others, and there will be certain strata in which scarcely any ore occurs. Very frequently where the same kind of metallic matter is contained in the vein, it will be mineralized or combined with different suffilances, as the vein passes through different beds; thus we find a metallic sulphuret more prevalent in one part, and a metallic salt or oxide in another part of the vein.

In Derbyshire, where the veins of lead pass through different beds of mountain lime-flone, which alternates with beds of bafalitic andyngloid, provisionally called toad-flone, it is found that the vein scarcely ever contains lead as it passes through the toad-flone, where it is always much narrower, and in some places appears to be entirely cut off by it; but on looking into the under beds of lime-flone, the vein is found again, and is as productive as in the upper beds. Where the vein can be traced through the toad-flone, it contains calcareous spar, and sometimes a few particles of lead-ore. If veins had been filled from above by metallic solutions, it is impossible to conceive that the nature of the rock could change the quality of the ore; much less could the ore disappear in one stratum, and appear again in a stratum below it. Professor Jamefon, in a paper published in the Memoirs of the Wernerian Society, has attempted to explain the difficulty presented by the interruption of the veins in Derbyshire, on the supposition that the different beds of lime-flone and toad-flone, together with the metallic veins, were contemporaneous, and that the toad-flone cut through the veins at the period of their formation. On this hypothesis, Mr. Bakewell, in his Introduction to Geology, remarks: "The existence of different organic remains in the upper and lower beds of the mountain lime-flone in Derbyshire, precludes the possibility of these beds having been all formed at the same time. The zoophytes in the lower beds of rock could not be living and co-existent with the shell-fish in the upper, nor with the vegetables, the remains of which are occasionally found in the sand-flone that covers the whole, and into which the veins sometimes shoot. Cuvier has well observed, that the existence of different organic remains in the upper and lower strata offers incontestable proofs that they were formed in succession over each other." In point of fact also, the veins are not always cut off by the toad-flone; but they are never productive of ore, where they pass through it, except in very small particles.

These facts are not less opposed to the igneous theory of metallic veins than to that of Werner. If metallic veins had been filled with their contents by the operation of subterranean fire, which cracked the surface, and injected the metallic matter in a flate of fusion, it is impossible to conceive that the nature of the rock, through which the veins pass, could have produced any material change in the quality of the ore. Metallic ores may, in some instances, have been formed slowly by exhalations from subterranean fires; as peculiar iron-ore, and even gold, has been found in the craters of volcanoes; and the phenomena, presented by the lava which destroyed Torre del Grecco in 1794, indicate the manner in which such ores are formed. The lava had buried entire houses for more than twelve months, at the latter end of which time it had considerably cooled; and when the houses were opened, pieces of iron were found converted into a flate of black, red, and magnetic oxyds, having the hollow parts and interfaces filled with a brownish-red transparent oxyd of iron, and with peculiar iron-ore. In the articles made of iron, which had undergone this change, the external form was scarcely altered, which evince that the crystals had been produced by sublimation. Copper articles were changed into crystralized red oxyd of copper, and red oxyd with green and blue carbonate. From the absence of metallic sulphurets, it is inferred that the lava contained little, if any, sulphur. These changes shew that metallic matter may be sublimed and converted into the flate of ore by subterranean heat, at a much lower degree of temperature than has been suppos'd.

There is a circumstance on which those who contend for the aqueous formation of metallic veins have laid much stress. In some instances, rounded pieces of flone, apparently resembling water-worn pebbles, have been found in mines at a considerable depth; but as many veins contain hollow spaces, through which water is continually running, the formation of pebbles might admit of a satisfac'tory explanation, without supposing that these pebbles had fallen in from above. The pebbles which we have seen of this kind, from the mines in Cornwall, are all of a chlorite fchilitus, and the form oblate, pre'enting the appearance which may be a frequent over lay of rocks of the same kind. It is in all probability an original formation, and not a breccia from pre-exil'ing rocks.

There is another circumstance which appears to have escaped the attention of geologists. The water in the mines of Cornwall, particularly in the vicinity of copper veins, has a temperature considerably above that of the natural temperature of the earth; it is said to be at 70° Fahrenheit; and the working miners, from its sensible warmth, can predi'd with certainty the vicinity of a copper vein. The increase of temperature, if any, in the vicinity of tin veins is lcss sensible.

From hence, as well as from various appearances in mines, we are led to infer that there are certain chemical changes now going on in the interior of the earth; and it is from a more enlarged acquaintance with these phenomena, that we can alone expect to obtain a satisfac'tory theory of the formation of metallic veins.

The following is a summary account of the rocks and situations in which metallic ores are generally found.

Platinum, and the recently discovered metals, palladium, rhodium, osmium, and iridium, have not been hitherto found in veins, but in the sands of rivers. The four latter metals are found as alloys in the grains of platinum. See PLATINA, PALLADIUM, &c.

Gold and silver are found in veins, and disseminated in primary and transition rocks, in porphyry, fentic, and the lower sand-flone. Gold has been occasionally discovered in coal, and is very abundantly disseminated in the sands of some rivers. See GOLD and SILVER.

Mercury is found in flate, in lime-flone, and in secondary flates. See MERCURY.

Copper occurs in veins and beds in primary and transition rocks, in porphyry and fentic, and occasionally in sand-flone. Mafies of native copper, of large fize, are found on the surface of the ground, in the interior of North America. See COPPER.

Lead and zinc occur in veins, and disseminated in primary and
VEIN.

Antimony occurs in veins in primary and transition mountains, except trap and serpentine. See Lead and Zinc.

Arsenic occurs in veins, either as a sulphuret or mineralizer of other metals, in primary and transition mountains, and in porphyry. See Arsenic.

Tellurium occurs in veins in porphyry, combined with gold. See Tellurium Mines.

Manganese occurs in beds and veins in primary and transition mountains, and in beds, and disseminated in red sandstone. See Manganese.

Molybdena, tungsten, and titanium, occur in granite, gneiss, mica-flake, and argillaceous schistus. These metals, with chromium and cerium, are very rare, and can only be reduced to the metallic state with great difficulty. See Molybdena, &c.

Mineral veins differ from metallic veins, being definite of ores, and filled with the same substances which compose entire rocks, or with earthy minerals.

Quartz veins (see Quartz) resemble in their structure and position many metallic veins; and it is not uncommon for a vein, which contains metallic ore in one part, to be intermixed with quartz and other vein-bones, will, in another part, be entirely filled with quartz. Quartz veins intersect almost all primary and transition rocks, but are particularly abundant in rocks of argillaceous schistus and greywacke. (See Rock.) The quartz in veins is most frequently white, and nearly opaque; and being much harder than the rocks which it intersects, it remains on the summits of mountains, after the surface of the rock is decomposed, until it is carried down by diluvial currents into the beds of rivers, where it becomes rounded by attrition, and is transported to distant districts. Most of the white quartz pebbles in England have probably been formed from the quartz veins of decomposed rocks, as no quartz of a similar kind exists as a rock in any part of England or Wales; but the same mineral abounds in veins.

Granite, argillaceous schist, slate, porphyry, greenstone, pitchstone, basalt, and various other rocks, frequently form veins in mountains of the same kind with themselves, or in different rocks. Where a vein of one kind of rock intersects a rock of a similar kind, the substance of the vein generally differs from that of the rock in texture, colour, and other characters. The granite in veins, which pass through granite rocks, will generally be coarser or finer grained than the rock which it passes through, and have the constituent parts differently mixed. The followers of Werner assert, that veins which contain rock substances have been filled from above by matter poured into the fissures, and that the granite in veins is of a secondary formation. They further maintain, that the lower rocks, which they consider as the older, never rise into the upper rocks in the form of veins. In opposition to this opinion, it has been discovered that veins of granite, in Cornwall, may be distinctly seen rising into the felsite or killas which covers the granite rocks in many parts of that county, particularly at St. Michael's mount, called of Penance, and at Mouffehole, two miles west of that town. Where the junction of the granite and felsite is exposed by the action of the sea, veins of the former rock may be traced, at low water, running in a zigzag form for many yards into felsite, gradually growing narrower, and terminating in small branches andtings. One circumstance we observed in the granite veins at Mouffehole, which may deserve notice: the same vein which penetrated the felsite, when it entered the granite, was different in texture from the granite rock, though it had the same constituent parts; it might be distinctly traced for a considerable distance into the granite. The granite also, in the vicinity of the felsite, was smaller grained than the general body of the rock; and the felsite, where in junction with the granite rock or granite veins, was changed to a kind of very fine-grained gneiss. These facts seem to indicate that both the granite and the felsite, to a considerable distance from their junction, had been in a softened state at the same time, and that their consolidation was contemporaneous. Similar appearances, with an intermixture of veins of felsite in granite, are present at Gisburn, and other parts of Scotland. Veins of granite, porphyry, or felsite, never penetrate the upper secondary strata; but veins of basalt and trap (see Trap) have been found in every kind of rock, even penetrating chalk. These veins are sometimes of vast extent and width, and frequently occasion great dislocations and derangements in the stratiifed rocks, particularly in the coal strata, where they have been most observed; hence they are called faults. (See Fault and Strata.) The dislocation of the strata by a vein of this kind is represented in Plate II. Geology, fig. 8, where the different strata, c, d, e, f, g, on the left-hand side, are separated from the corresponding strata on the right, and considerably elevated.

As the veins of trap or basalt are nearly vertical, and often several yards in width, and the substance with which they are filled being frequently harder than the strata which they intersect, these veins remain when the surface is decomposed to a considerable depth, rising like a wall or fence, which, in the language of North Britain, is synonymous with dyke; hence such veins have been called dykes, or robin-dykes, the term whin-dyke being used to denote basaltic rocks. (See Whin-stone.) Basaltic veins, or whin-dykes, vary in width from a few inches to several yards, and are sometimes more than one hundred yards wide. They often extend many miles in length; in other instances they terminate at shorter distances, forming irregular wedge-shaped mafles. When basaltic dykes are of considerable width, the basalt is interfaced by fissures; and sometimes the central parts and sometimes the fings are harder or looser than the other; and in some parts the basalt graduates into a dark ferruginous clay. Maltes of basalt from the dyke are frequently found wedged in between the strata, extending to some distance: and where basaltic dykes intersect coal strata, the coal in the immediate vicinity of the dyke has frequently the appearance of being charred. At Corshall-fell, in the county of Durham, the coal strata are cut through by a basaltic vein or whin-dyke, which is about sixteen yards wide. Where it comes in contact with the coal, the latter substance, for several feet, is converted into a pulvarenent flate, like wood. At a greater distance from the basalt, the coal is reduced to a coke or cinder, which burns without smoke, and with a clear durable heat. At the distance of fifty feet from the basalt, the coal is found in the flate of varicolored mineral coal. The roof over the coal is lined with bright red and black streaks of sulphur, probably fublimed by heat from the dyke; and the veines continue to coal. In these appearances we recognize every circumstance which might be expected from the agency of heat, but which would be extremely difficult to reconcile with the apparent formation of basalt. We have seen similar appearances near basaltic dykes in Northumberland. The vein, or dyke, of basalt
at Cockfied-fell, is part of the longest dyke which has been traced in England, or perhaps in any other country. According to the description of it in Mr. Bakewell's Introduction to Geology, "it extends from the western side of Durham in an eastward direction, to Bewick in Yorkshire, crossing the river Tees at this place, and proceeding in the same direction through the Cleveland hills, in the Eait Riding of Yorkshire, to the sea-coast between Scarborough and Whitby. It riles to the surface, and is quarried, in many parts of its course, for stone to repair the roads. It crosses the turnpike near the seven mile- stone from Whitby to Pukering, where there is a quarry sunk in it. The vein, or dyke, is here about ten yards wide; the stone is a dark greyish-brown basalt, and is the principal material for mending the roads in the district called Cleveland. The extent of this dyke has been traced in a direct line about seventy miles. In its course it interfets the metamorphic stone of Durham, the coal district, and the aluminous felsite. The circumstances attending this and other extensive dykes, which have not hitherto been regarded by geologists, completely invalidate," says Mr. Bakewell, "the theory, that these dykes were originally topogenous figures, formed by the shrinking or collapsing of the rocks. As the different rock formations through which it passes contain different organic remains, they must have been formed in succession at different periods, and the metamorphic stone, with the lower strata, must have been consolidated long before the upper strata were deposited; and the causes which might dispose the upper strata to shrink and open, cannot be supposed to act on the lower rocks. It is also remarkable, that the width of this vein is more than twenty yards in the lower rocks on the west; but in the upper rocks it is not more than ten yards. The dyke must have been filled with its contents at the time of its formation, otherwise it would contain fragments of the rocks which it interfets. As it passes through the limestone, it has rendered it more crystalline in its vicinity, and the effects in charring the coal, before deprived, point to subterranean fire as the original cause of its formation, and as the source whence the basalt that fills it was supplied. The close resemblance between the basalt and compact lava, add probability to the opinion that this great dyke was originally formed by an expansive force operating from below, which opened a chasm in the surface of the earth, and ejected the contents in a state of fusion. A volcanic dyke was formed on the western side of Velevius, June 12, 1794, two thousand three hundred and seventy-five feet in length, and two hundred and thirty-seven feet in breadth, through which lava rose to the surface. This lava, when cooled, formed a wall of stone interfeting the former beds of lava, and constituting a real dyke. The stone has a dark-grey colour, and is in some parts so compact as to resemble hornstone." See Volcano.

The effects of basaltic veins on the contiguous parts of the strata of sandstone which they interfet, are no lefs remarkable. In some inclusions, the sandstone appears very considerably indurated, and converted into a substance resembling hornstone.

It is observed by Mr. Allan, Tranactions of the Royal Society of Edinburgh, vol. vii. that the sandstone which is thus indurated, contains calcareous earth, which appears to have promoted its semi-vitrification; but where the sandstone remains unchanged in the vicinity of a dyke, the calcareous earth is wanting. Sir G. Mackenzie observed basaltic dykes in Iceland, the walls or sides of which were lined with a glossy substance resembling obsidian. These effects offer further illustration of the igneous origin of basaltic veins. A very interesting account of the effect produced by basaltic veins on the different beds of rock at the Giants' Causeway, and on other parts of the same range on the north coast of Antrim, is given in the third volume of the Transactions of the Geological Society.

Various beds of columnar basalt, argilliaceous lime-flone, and chalk, are interfeted by perpendicular dykes or veins of basalt. The chalk in the vicinity often undergoes a remarkable change, extending eight or ten feet from the wall on each side, and thence gradually decreases. The part nearest the basalt is converted into a dark-brown crystalline lime-flone, like coarse-grained primitive lime-flone. The next strata is that of fine-grained primitive lime-flone, or felscharne lime-flone; then fine-grained arenaceous lime-flone. A compact variety, having a porcelain aspect, and a blueish-grey colour, next succeeds; this, towards the outer edge, becomes gradually white, and indifferently graduates into unaltered chalk. The flints in the altered chalk assume a greyish-yellow colour. The altered chalk is highly phosphoricent when subjected to heat. In other parts of the range, the argilliaceous beds of flint appear converted into horn-flone by contact with the basalt, and consist in that strata the imbedded fossils peculiar to the flint strata. (See Strata.) The basalt in some of the veins is columnar; but the columns lie horizontally. It has been conjectured, with some probability, that this has been caused by its passing from a state of igneous fluidity, and the refrigeration commencing from the sides. From the same cause, in the beds of columnar basalt in that range, (see Giants' Causeway,) the columns are perpendicular, the cooling commencing from the top and the bottom of each bed. The marine organic remains in the strata over the basalt, prove that the whole were formed under the sea. In some instances, basaltic veins appear to have been opened, and the intervening space filled with debris from the upper strata; and there are basaltic dykes in Northumberland, in which the basalt being divided into irregular masses, the interstices are filled with iron-clay, and contain impressions of ferns, like those in the coal strata which these dykes or veins intersect. On the whole, no country in the world which has yet been examined presents so many interesting appearances of basaltic veins as the northern parts of Great Britain and Ireland, nor are they any where exposed to the eye of the observer with so much distinctness as on many parts of the sea-coast, where the ocean has bared the surface, and exposed the most magnificent and instructive sections of entire mountains, penetrated by these veins to the height of many hundred feet. The veins may often be seen extending from the mountains into the sea, rising up like enormous walls, which serve as monuments of the ravages of the ocean upon the coast. The great hardness of the substance which fills the veins has prevented their destruction by the waves that have broken down and removed the mountain masses in which these veins were once imbedded.

Messrs. Lewis and Clarke, the American travellers, describe extensive walls of dark columnar flone ranging through the interior of North America; these walls were undoubtedly dykes or veins of columnar basalt, remaining where the surface of the ground had been washed away. There are also inclusions where the substance of basaltic veins has been softer than the surrounding rock, and is washed out wherever the rock is exposed, forming deep fissures, with perpendicular walls of rocks on each side. Such appearances are not uncommon on the sea-coast in various parts of Scotland. For an account of basaltic rocks, see Trap.

Vein is also applied to the streaks, or waves, of divers colours appearing on several forts of stones, flones, &c.
VEL

as if they were really painted; and which the painters frequently imitate in painting wainscots, &c.

Marble is generally full of such veins.

Lapis lazuli has veins like gold. Ovid, speaking of the metamorphosis of men into flies, says—"Quix modo vena fut, tab codem nomine manit."

Veins, in flies, are often a defect, proceeding usually from an inequality in their constitution, as to hard and soft: which makes the stone crack, and shiver in those parts.

VEJOURS, or VIEWERS, Pifores, in Law, are perfons bent, by the court, to take a view of any place in quetion, for the better decision of the right.

It is also used for those who see such as effoim them-selves de mala bele, whether, in truth, they be such that they cannot appear, or whether they counterfeit.

VEIRAS, in Geography, a town of Portugal, in Alentejo; 15 miles N.E. of Estremos.

VEIRY, a town of France, in the department of the lake of Leman; 9 miles E. of Scieifel.

VEISSENBERG, a town of Russia, in the government of Revel, on the coast of the gulf of Finland; 56 miles E. of Revel. N. lat. 57° 22'. E. long. 26° 14'.

VEISENSHTEIN, a town of Russia, in the government of Revel; 32 miles S.E. of Revel.

VEIT, Str., a town of Germany, in the circle of Bavaria, and archchipsopie of Salzburg, near the Salza; 28 miles S. of Salzburg.—Alfo, a sea-port town of Ilftria, called aflo Fiume, situated near the gulf of Venice, on a narrow plain, which yields good grapes, figs, and other fruits. The harbour is formed by the Fiumara. For the convenience of exportation and importation, the emperor Charles VI. caused an highway to be made from this place to Carlhadt, in Croatia. A fugar-house has also been founded here. St. Veit is exempt from taxes and contributions; 3 miles S.E. of Triette. N. lat. 45° 46'. E. long. 14° 42'.—Alfo, a town of Germany, sometimes called St. Veit, in the duchy of Stiria; 3 miles S.E. of Pettau.—Alfo, a town of Germany, in the duchy of Carinhia, situated on the river Glun; 8 miles N. of Clagenfurt.—Alfo, a town of Germany, in the archduchy of Austria; 5 miles W. of Vienna.—Alfo, a town of Germany, in the archduchy of Austria; 11 miles W.S.W. of Freuhladt.

VEITA, a small island in the Mediterranean, near the east coast of Tunis. N. lat. 35° 1°. E. long. 11° 12'.

VEITH, Str. See St. Veith.

VEITSBERG, a town of Saxony, in the circle of Neufadt; 3 miles N.E. of Weyda.

VEITSHOCHHEIM, a town of the duchy of Wurzburg, on the Main; 20 miles S.W. of Schweinfurt.

VEL, in Ancient Geography, a town in the interior of Africa, and one of those which were subjugated by Cornelius Balbus. Pliny.

VELA, i: Geography, a rocky foord in the Spanish Main. N. lat. 15° 16'. W. long. 75°.

VEL, Cape de la, a cape on the N. coast of South America. N. lat. 11° 50'. W. long. 74° 46'.

VELABORI, in Ancient Geography, a people who inhabited the territory on the western coast of Hibernia, S. of the Ganges. Ptolemy.

VELACH, in Geography, a town of the duchy of Carinhia, at the union of the Campach and Moll; 11 miles N.N.W. of Saxenburg.

VELAGA, in Botany, Gaertn. v. 1. 245. t. 153; a name of Adamons's, adopted by Gartner, and belonging to the genus now called Pfaffospermum; see that article, under which it should be cited as a synonym.

VELAINE, in Geography, a town of France, in the department of the Meurte; 6 miles E.N.E. of Nancy.

VELAM, a town of Hindoofstan, in the country of the Nayrs; 34 miles E. of Calcutt.

VELAMEN, is used, by some Surgeons, for the bag, skin, or bladder, of an impohtume, or swelling.

VELAMENTUM BOMBYCINUM, a name which some anatomists give to the velvet membrane, or inner skin of the intestines.

VELANGODY, in Geography, a town of Hindoofstan, in Marwar; 7 miles W. of Tramman.

VELANI, in Botany and the Arts, sometimes called Valonia, a name given by the modern Greeks to the acorns of a species of oak, (see Quercus Agyios, and Quercus Inipotitaria,) denominated the "Velani." The tree grows on the western coast of Natoliz, in the islands of the Archipelago, in those of Corfu and Cephalonia, and throughout all Greece. For an account of the galls of this oak, we refer to the article GALLS. The Orientals take care to gather the galls at the precise time which experience has proved to be most favourable, or in which the excrecence has acquired its full size and weight. For this purpose, they visit the hills and mountains that are covered with oaks. The first galls that are picked up are laid apart; these are known in the East under the name of "Yeri," and distinguished in trade by the terms of "black galls" and "green galls." These which have escaped the first searches, and which are gathered a little later, called "white galls," are of a very inferior quality. The galls of the environs of Aleppo, Smyrna, Magnesia, Karihitar, Dargbekir, and the whole interior of Natoliz. The former are fold at Smyrna and at Aleppo two or three piaires less per quintal than the others. The inhabitants neglect to gather the acorns, which serve as food for the wild boars and goats; the latter contribute very much to render the oak small and stunted, by devouring, with its fruit, a part of its foliage and young boughs.

The diplopeps which produces these galls has a body of a fawn-colour, with the antenna dark, and the upper part of the abdomen of a shining brown. It is sometimes found, under its latter form, in the inside of the galls which are not yet pierced. On the same oak are found other galls in great numbers, which the inhabitants neglect to gather, because they are not fit for dyeing.

The velain, or valonia, is gathered in the autumn, and dried under the sun, which protect it from rain, and is in a proper state for shipping about the beginning of March; that which is gathered on the mountains is preferred to that of the valleys. There is also a difference with respect to its age or size; the small and young is taken from the trees before it has attained its full growth, and is much better than the large, or that which remains till it is full grown. Those of the best quality are usually sent to England, and the inferior to Ancona and Tralle. This gall is used for dyeing and tanning, and in Turkey a considerable quantity is consumed for the latter purpose.

The quantity shipped annually from the different Turkish ports may be calculated at from 2400 to 3200; it is sent to several places in Europe: particularly London, Liverpool, Leibnorn, Turfke, Ancona, and Greece. The oil, or kernel, of the valonia is not reckoned of any value, and is sometimes picked up on the figs and changes, [that is, freeing it from dirt, leaves, &c.] when it is from 12 to 15 for each, according to the quality of the article, and the
expence is from 30. to 40. per ton. The cup which
contains the nut or kernel constitutes the value of the valonia.
It has been used in this country many years by the dyers,
and has lately been introduced into the tanneries as a sub-
stitute for oak-bark, and the quantity used in this way has
been very considerable. The quantity imported into Lon-
don and Liverpool for the years 1811, 1812, 1813, amounted
to above 1200 tons per annum on an average. This was at
a time when oak-bark was scarce and dear; but when the
price of bark is low, the consumption of valonia is less ex-
tensive; for the leather manufactured with oak-bark is pre-
ferred to that prepared with valonia, chiefly on account of its
quality, as the colour of the leather is reckoned to be equal,
if not superior, to that which is tanned with bark. We
may here observe, that the great distance from which
valonia, or valani, is brought, and the heavy duty it pays,
compared with oak-bark, discourage its use; but if the
duty should be taken off, it is probable that the consump-
tion would be greatly increased.

VELANIDA, in Botany. See Quercus, n. 68.
VELARIUS, in Antiquity, an officer in the court of
the Roman emperors, being a kind of usher, whose post was
behind the curtain, velas, in the prince’s apartment; as that
of the chancellors, cancelli, was at the entry of the balfirade,
and that of the oficari at the door.

The velarii had a superior, of the same denomination, who
commanded them; as we find in two inscriptions, quoted by
Salmusius in his notes on Voplius, and by a third in Gruter.

VELASCO, DON ANTONIO PALOMINO, in Biography, was
a Spanish painter and historian of the artists of his country.
He was a native of Valencia, where he flourished about
1700. He was painter to Philip V., and painted many pictures
for the churches and convents of Valencia, Sala-
manca, and Grenada, but is much better known to us as an
author. He published an elaborate treatise on the art of
painting, in two folio volumes, in which he notices 350
painters and sculptors who had flourished in Spain previous
to the conclusion of the reign of Philip IV. Of this work,
there was an abridgment published in London in 1742,
etituled “Las Vidas de los Pintores y Statuarios eminentes
Espanoles,” of which there is an English translation.

VELASCO, in Geography, a town of North America, in
the province of Mexico.

VELASQUEZ DE SILVA, DON DIEGO, in Biography,
the most distinguished painter of the Spanish school, was
born at Seville in 1594. His parentage was noble, being of
a family originally of Portugal, which had established
itself in Andalusia. Though confined in fortune, they gave
him a liberal education, and, as he had evinced much inclination
for drawing, placed him with Francesco de Herrera,
the elder; but he afterwards became the disciple of F. Pa-
cheo, an artist of very considerable ability, and a scholar,
then residing at Seville. With him Velasquez studed atten-
tively, and his talents displayed themselves in a variety of
imitations of natural objects, particularly of peafantry in
their peculiar habits and occupations. Of these we have
now a specmen in England, which had at all times been
seen as a matter of exhibition of his early acquirements,
and celebrated under the appellation of the “Water Car-
rrier.” It was exhibited in the new palace at Madrid, but
was removed from thence by Joseph Bonaparte, and was
found, with a great number of other pictures, in the imperial
collection at the battle of Vittoria. It is now in the pos-
fession of the duke of Wellington, among the numerous other
trophies of that great man’s fame. Still, however, it is con-
idered by his grace as the property of the Spanish crown.
Velasquez continued attached to this particular application of
his art, conscious of his superiority, and declining to extend
his views to a more elevated class of subjects, till at length
the flight of some pictures by Guido and Caravaggio, which
Pacheo had received from Italy, excited his emulation, and
he then turned his thoughts to history and portraiture.
After he had been five years with Pacheo, that master be-
lowed upon him the hand of his daughter in marriage, and
he continued still to prosecute his art under the guidance of
that able instructor. In 1622, Velasquez left Seville, to
visit the metropolis of Spain and the Efeurial, and there
his talents recommended him to the notice of the count De
Oliveros, the favourite minifter of Philip IV., who pato-
nized and befriended him; taking him into his own palace
to dwell. Soon after he introduced him to the king, who
immediately ordered him to paint his portrait. From the
completion of this picture, which was upon a grand scale in
armour, and on horseback, the reputation of Velasquez was
established above all his contemporaries, and his patron was
ordered to inform him, that from that time the royal perfon
would be intrusted to no other painter but himfelf.

He received the royal permission to make a public exhibition of
it, when it was loudly applauded by all about the court, and
held up to public estimation by laudatory verfls in its
honour from the poets.

After this successful commencement of his public career,
he was employed to paint the portraits of the infants Don
Carlos and Don Fernando; and that of the minifter; his
patron, mounted, like his royal master, on a noble Andaluflan
charger, richly caparioned. He now, therefore, began to
enjoy the blessings of fortune, as well as thofe of fame.
He was appointed principal painter to the king, with a liberal
salary, besides receiving munificent remuneration for his
pictures, and being buly occupied in portraits.

He now also, in emulation of other Spanish painters, de-
termined to undertake a work upon a more extended scale
than he had before done, and took for his subject the ex-
pulsion of the Moors from Spain by Philip III. But, if
we may judge by the description given of the picture, it
does not appear to have polished much interefling matter
of a high historic quality; however, he gained great reputa-
tion from the skill with which he executed it. The com-
position represented the king armed, and in the act of com-
manding a party of soldiers, who are escorting a group of
Moors of different fexes and ages to the sea-shore for em-
barkation. On the other side is personified the kingdom of
Spain, as a majeftic matron, with a flately edifice. This
picture, as appears by an inscription upon it, was painted in
1627, and it was no sooner completed than he again ex-
perienced the munificence of his sovereign, who made him one
of his chamberlains, and allowed him an additional riper.

It was at this time that Rubens visited Madrid. He
formed an intimacy with Velasquez, and first inspired him
with a defire to visit Italy; and he obtained from his royal
patron every advantageous means of going there, with re-
commendatory letters to render his refidence in Rome
and Venice as useful and agreeable to him as poftible.

He embarked at Barcelona in 1629, and first landed at
Venice, where he was received and entertained by the Spa-
nish ambaffador. In this delightful birth-place of colouring,
the works of its great master Titian, in the palace of St. Mare,
excited his warm admiration, and he made several copies of
tem, and no one ever more thoroughly imbued the prin-
ciples upon which they are constructed. But perhaps it is
of Titoreto that Velasquez is more the imitator, than of
Titian. His freedom of pencil appears to have been more congelion with the tale of the Spanish, than the fober
and more correct hand of the former. After remaining at Ve-

nice a few months, he went to Rome, where he was molt graciously received by the cardinal Barberini, nephew to Urban VIII., who procured for him apartments in the Vatican, and access at all times to the works of Raffaello and M. Angelo. During his residence in Rome, he painted his celebrated history of Joseph's coat brought to Jacob; and also another very able work, of Apollo informing Vulcan of the infidelity of Venus; in which he had an opportunity of displaying his power of handling, and his admirable skill in colouring. Vulcan is at his forge, the light and shadow proceeding from which are most skilfully conducted: the strong and nucular forms of the Cyclops gracefully contrasted with the pure form of the Apollo; and the whole composition arranged with infinite judgment. Both these pictures were sent to Spain, and honoured by having distinguished places assigned to them in the palace of the king.

On his return home he went to Naples, and there painted the portrait of Donna Maria of Austria, queen of Ferdinand III. After about the lapse of a year and a half, he arrived at Madrid, and found his favour with his royal master undiminished. He was again lodged in the royal palace, and the king kept a key of his painting room, that he might have free access to him without ceremony; and this he frequently indulged himself with, as his great predecessor, Charles V., had done with Titian. And so strongly were the reminiscences in his powers, that it is said the king, going into his room one day, expressed some surprise, that a nobleman, to whom he had given a commission which required his absence from Madrid, had not departed, imagining that he saw him in the room, when it was in reality only his portrait.

In 1638, Velázquez painted his most celebrated picture of our Saviour on the Cross, for the conven of St. Placid, at Madrid; and about the same time, that of the general Pefcarra receiving the keys of a Flemish castle from the governor of the place. The management of all the different characters, the officers, &c. and the effect of the fortification, &c. of the town and landscape in the back-ground, is altogether eulogized by Mengs as the chef-d'œuvre of Velázquez.

Though his patron d'Olivarez fell into disgrace in 1643, yet Velázquez maintained his interest at the court; and in 1648, was commissioned by the king on a particular embassy to pope Innocent X., and at the same time was empowered to purchase for his majesty the finest works of art, both of sculpture and painting, which he could procure in Italy. On this occasion he embarked at Malaga, and having landed at Genoa, paffed through Milan and Padua to Venice, where he was well pleased to renew acquaintance with the great masters of art, whom he had before beheld with so much admiration. He afterwards visited Bologna; and on his arrival at Rome, was received with great favour and distinction by the pope; and in the unengaged moments of his more serious business, he painted a very fine portrait of his holiness, of which there is a capital exemplar at Luton, the seat of the marquis of Bute, which has every character of originality. For this painting, the pope gave him a gold medal and chain; and the academicians of St. Luke elected him of their body.

After a lapse of nearly three years, Velázquez took his departure from Genoa, in a vessel freighted with a magnificent collection of pictures, statues, busts, &c. which he had collected, and on his arrival was molt graciously received by the king, and honoured with further marks of his royal favour and bounty; among which the order of Santiago was not the least, as being confined to persons of the highest rank, or the most eminent abilities. He thus lived, in honour and riches, till 1660, when the ruthless hand of death put an end to his labours and enjoyments. He was buried with great funeral pomp in the church of San Juan.

VELATODURUM, or VELATODURUM, in Ancient Geography, a place on the route from Befançon to Epamondorum or Mandura.

VELAUNI, a people of the Maritime Alps near the fen, E. of the Nermiti.

VELAUR, in Geography, a river of Hindoosftan, which rises near Attore, in the Mytore country, and runs into the bay of Bengal, near Portonovo.

VELAY, before the revolution, a country of France, in Languedoc, situated to the W. of the Vivers, and the E. of Anvergne. It is mountaneous, but fertile: Le Puyen Velay was the capital. It now constitutes the department of the Upper Loire.

VELAZCGERD, a town of Pertia, in the province of Kerman; 54 miles N.E. of Gomron. N. lat. 28° 10'. E. long. 56° 34'.

VELBERG, a town of Germany, in the territory of the imperial town of Hall; 7 miles E. of Hall.

VELBERT, a town of the duchy of Berg; 5 miles N.N.E. of Medman.

VELBURC, a town of Bavaria, in the principality of Neuburg; 12 miles N. of Dietfurt. N. lat. 49° 10'. E. long. 12° 28'.

VELCERA, in Ancient Geography, a town on the coast of Illyria, between the mouth of the river Genaus and the town of Senia. Ptolemy.

VELDEN, in Geography, a town of Bavaria; 6 miles S.S.W. of Landshut.—Alto, a town of Germany, in the territory of Nuremburg, on the Pregnitz; 21 miles N.E. of Nuremburg. N. lat. 49° 37'. E. long. 14° 31'.

VELDENTZ, a town of France, in the department of the Sarre, formerly capital of a county, in the circle of the Upper Rhine, united with the palatinate; the environs are celebrated for an excellent Moselle wine: 17 miles E.N.E. of Treves. N. lat. 49° 53'. E. long. 6° 53'.


VELEA, a town of Hispania Citerior.—Alto, a town of Italy, S. of Placuita, in Gallia Cilipadana: now in ruins.

VELEN, in Geography, a town of Germany, in the bishopric of Munster; 22 miles W. of Munster.

VELETRI, a town of the Popedom, in the Campagna di Roma. This was a very ancient town, and considerable in the time of the first Roman kings. It was taken by Ancus Martius, fourth king of the Romans, and taken by the Vetulcians, under the command of Coreless. The Romans took it again some time after, and, removing the inhabitants, filled it with a Roman colony. It is the site of a bishop, united with Olbia, which is called the bishop of Olibia, but its residence is at Velence, 28 miles N.N.W. of Terracina. N. lat. 41° 42'. E. long. 12° 30'.

VELENZ, a town of South America, in New Granada; 100 miles from Santa Fe de Bogota. N. lat. 5° 52'. W. long. 75° 16'.

Velas de Guzman. See Guzmán.

Vellala Malaga, a seaport town of Spain, in the province of Granada, near the coast of the Mediterranean. The chief article of trade is raisins. In 1487, this town was taken from the Moors by Ferdinand, king of Catalonia and Aragon; 13 miles E. of Malaga. N. lat. 36° 47'. W. long. 4° 18'.

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VELLE, el Rubo, a town of Spain, in the province of Grenada, near the Guadalentin. This town was, in the time of the Moors, a strong place, and furnished with a garrison; 14 miles S. of Huesca.

VELEZAR, a river of Spain, formed by the union of the little rivers Bueria and Sil, on the confines of Leon, which, after receiving several other small streams, unites with the Minho, a little above Orense.

VELEZA, in Botany, was so named by Linnæus, at the recommendation of his pupil Læfling, in honour of Dr. Christofo Velez, examiner, first physician, and demonstrator of botany, at Madrid, who showed Læfling his manuscript Flora of the environs of that capital, which we do not find has ever been published.—Linna. Gen. 176.


Gen. Ch. Cal. Perianth inferior, of one leaf, tubular, long and slender, with five angles, five intermediate furrows, and five pointed, erect, small teeth, permanent, without any appendages at the base. Cor. Petals five; claws linear, erect, very narrow, the length of the calyx; limbs spreading, oblong-wedge-shaped, cloven or toothed, hairy at the base, much shorter than the claws. Stam. Filaments ten, capillary, about the length of the calyx, inserted into the receptacle; anthers roundish, incumbent. Pist. Germin superior, cylindrical, short; styles two, thread-shaped, hardly 1 inch long as the flaments; filigines simple. Peric. Capsule cylindrical, slender, of one valve and one cell, opening with four teeth at the summit. Seeds numerous, oblong, alternate, imbricated downwards, concave in front, convex at the back, inserted in a fimple row, by the dorsal furrow, into a thread-shaped, unconnected receptacle. Eff. Ch. Calyx of one leaf, nearly cylindrical, furrowed, naked. Petals five, with very long claws; limb bearded at the base. Capsule superior, cylindrical, of one cell. Seeds imbricated.

A small genus of flandard campion-like plants, with numerous little pink flowers, nearly related to Saponaria, (see that article,) and certainly to be placed next to it in the artificial, as well as natural, systen. Linnæus knew but one species. We have a new one found by Dr. Sibthorp in Aifa Minor.


2. V. quadridentata. Four-toothed Velezia. Sm. Prodr. Fl. Grec. Sibith. n. 954. Fl. Grec. t. 391, unpubl.—Calyx club-shaped, smooth. Petals with four teeth. Gathered by Dr. Sibthorp in Aifa Minor, and, if we are not mistaken, in the isle of Patmos. This has the precise habit of the foregoing, but is rather larger, and quite smooth. The flowers are falked. Calyx angular, swelling upwards. Limb of the corolla marked like V. rigida, with a central flar; but each petal has four strong teeth, or acute lobes, instead of being only simply cloven. Each claw is crowned, in both species, with a tranverse row of white hairs. Stamens in the present all of equal length. Capsule rather ftrouter, shorter, and feds accurately cylindrical, than the former.

We have no doubt of this genus being equally distinct from Saponaria and Gypsophila, (see that articles,) though the fift species betrays aft moft affinity to the former, the fecond to the latter. An ovate, even calyx, and oblong capsula, are proper to Saponaria; a bell-shaped angular calyx, and almost globose capsule, to Gypsophila. Velezia is perhaps more naturally akin to Dianthus, but wants the fcales at the bottom of the calyx.

VELHAS, in Geography, a river of Brazil, which runs into the Parana.

VELIA, or Helia, in Ancient Geography, a town of Italy, in Lucania, westward, on a small gulf of the fame name, formed by the small stream Heles, from the Greek Helia, signifying a marph.—Alfo, a town of Hispamia Citror, belonging to the Caritii. Ptolem.

VELICALA, in Geography, a town of California, near the coast of the Pacific ocean. N. lat. 20° 35'. W. long. 115° 50'.

VELIDIA, a town of Morocco, on the coast of the Atlantic; 25 miles S.W. of Mazagan.

VELIKA, a town of Morlachia; 25 miles S.E. of Segna.—Alfo, a river of Croatia, which runs into the Save, near Craióva Velika.—Alfo, a river of Ruffia, which runs into the Vitack, 10 miles N.E. of Orlov, in the government of Vitacka.—Alfo, a river of Ruffia, which runs into the Tchudski lake, near Píkov.

VELIKIE LUKI, a town of Ruffia, in the government of Píkov, on the Lovat; 142 miles S.E. of Píkov. N. lat. 46° 28'. E. long. 30° 14'.

VELIKOI, a small illand of Ruffia, in the white sea. N. lat. 66° 45'. E. long. 32° 20'.

VELILLA, a town of Spain, in the province of Aragon. The author of the "Continuation of Mariana’s History of Spain," speaks of a bell in this town of great celebrity, which rung sometimes without the help of man; and that a particular description of its wonders was printed at Madrid in 1657.

VELINDO, a mountain of Naples, in Abruzzo Ultra; 12 miles S. of Aquila. This is one of the Apennines, and probably the highest of them. Its summit, 8397 feet above the Mediterranean, is covered with snow in June: about 46 geographical miles N.W. of Rome.—Alfo, a river of the Popedom, which runs into the Nera, about four miles from Terni, in the duchy of Spoleto.

VELINUS, (VELINO,) in Ancient Geography, a small river in the country of the Sabines, in the northern part; its sources were about twenty miles from Reate, towards the E., in mountains abounding with water. It paffed southward, by a place called Vacunis, afterwards by Intocrea, where it turned towards the W., to the plain on which was situated Cutileia. Changing its direction towards the N.W., it entered an immense plain, in which were high mountains, and formed a large lake. These
flagrant sulphuraceous waters were found very inconvenient. M. Curious pierced a mountain and made a canal to the Velinus, so that its waters had a free passage to the sea, by a valley, which Cicero compared to the valley of Tempé. The inhabitants of Reate found here abundance of roes, whence they called it Rosae. The Velinus discharged itself into the Nar near Interamna.—Alfo, one of the seven mountains of Rome.

V E L I C A S S E S, Velocasses of Caesar, Velocasses of Pliny, and Velocasses of Tolemy, were a people joined by Caesar to the Catall, and others among the Belgæ, separated by the Seine from the Celts. But in the division of Gaul by Augustus, the Velocasses, as well as the Catall, are placed in the Lyonnène, and they are referred to in that province by Tolemy and Pliny. Their capital, Rotomagus, became the metropolis of the second Lyonnène, when the Lyonnène of Augustus was divided into two provinces.

V E L I S C U M, a place of Africa, in Mauritania Cefa- rienfis, upon the route from Rufucurrum to Celama, between Sufafar and Taranumafa Caftra. Anton. Itin.

V E L I T E S, in the Roman Army, one of the four kinds of foot folders that composed a legion, who were armed lightly with swords, bows and arrows, flings, and javelins. For defensive armour they had only a small target, and a helmet or head-piece.

These were commonly young men of mean condition, and took their name a volaudo, or a velocitate, from their swiftness and expedition: and they were designated for skirmishing with the enemy before a battle, and pursuing them after a defeat.

They seem not to have been divided into any distinct bodies or companies, but to have hovered in loose order before the army.

The other classes of the Roman infantry were the haftati, principes, and triarii. In the day of battle, the haftati were placed in the first line, the principes in the second, and the triarii in the third. The Velites formed small flying parties both in front and rear. See Battle.

V E L I T I S, in the Natural History of the Ancients, the name of a peculiar sort of land used in the manufacture of glafs; for which purpose they always chose such as was found washed clean on the banks of rivers; and this they therefore called glas-fand, or velitis, or hyalitis.

V E L I T R Ė, or V E L I T R I, in Ancient Geography, a town of Italy, in Latium, in the country of the Volvisians. It was at some distance from the Appian way, S.E. of Alba, and became considerable under the Romans. It had an amphitheatre, of which no trace now remains. Two roads led to Velitra; one to the W. detached itself from the Appian way, the other to the E. communicated with the Latin way. See VELITRI.

V E L I Z, in Geography, a town of Russia, in the government of Polotsk; 88 miles E. of Polotsk. N. lat. 55° 20'. E. long. 31° 4'.

V E L L, in Rural Economy, a term applied in some districts to the bag or stomach of the calf, which is used in making running or runnet; or to the prepared stomachs of the animals or rennet for curdling the milk in cheesemaking, which are often called veils. In some dairies, instead of making the rennet ready some time previous to its being used, a small piece, proportioned to the quantity of milk to be coagulated, is cut from the vein the over-night, and put into half a pint of water, or whey, to infuse until the morning. In this case, the veils are to be fuppofed to be equal in goodness; and it is probable, that the virtue may not be fully extracted as by a longer infusion. It is fuppofed too as not improbable, that by the strength Vol. XXXVI. of the rennet might be a certain by means of experiment, by the application of alkali salts, and by such means be rendered more certain in its use. See Dairying.


Obf. V. Pfeudio-cyifus has the four larger filaments deftitute of anthers, and combined together in pairs. Linnae.

Ed. Ch. Pouch tymid, crowned with the leafy ovate style. Cotyledons folded. Calyx closed.

1. V. annua. Annual Crefe-rocket. Linn. Sp. Pl. 805. Willd. n. 1. Fl. Brit. n. 1. Engl. Bot. t. 1444. N. affurwm fylvatere valentimum; Cluf. Hift. v. 2. 150. Bauh. Hift. v. 2. 920. Eruca nafurtio cognita tenuifolia; Ger. Em. 247, good.—Leaves pinnatifid. Pouches pen- dulous.—Native of fandy fields in England, Spain and Greece. With us it is a very rare plant, fearcely ever obferved but on Salisbury Plain, about Stonehenge, where it was first gathered by Mr. Iface Lawfon, in Ray's time, and has occasionally been feen fince, flowering in June. The root is fibrous, small and annual. Seed-leaves permanent for some time, inverfely heart-shaped, smooth. Herb variable as to luxuriance, erect; its stem about twelve or fifteen inches high, alternately branched, buffy, leafy, rough with defcended bristles. Leaves alternate, doubly pinnatifid, rough, with narrow blunt segments. Spike terminal, many-flowered. Calyx purplifh. Petals entire, sulphur-coloured, with purple veins. Pouch turned downwards as it ripens, about the fize of a hemp-feed, rough, crowned with the smooth, fpatulate, enlarged style, twice its own length. Seeds roundish, three or four in each cell.


—Native of the neighbourhood of Aranjuez in Spain, flowering in May. Sometimes kept for curiosity as a hardy greenhouse plant, but not remarkable for beauty. The stem is shrubby, branched, rough, two feet high. Leaves alternate, rather fefly, entire, rough, scarcely an inch long, tapering down into a short fuffath, and generally accompanied by two smaller leaves. Flowers in long spikes, yellow, with pale veins. Permanent style broad, nearly
VEL

VELLACHERY, a town of Hindoostan, in the Carnatic; 10 miles S.E. of Madura.

VELLADY, a town of Hindoostan, in Myfore; 14 miles S. of Dambottta.

VELLAS, a town of the island of Ceylon; 44 miles W.N.W. of Caudi. Lat. 5° 45'. E. long. 81° 16'.

VELLATOR, a town of Hindoostan, in Myfore; 5 miles E. of Coimbetore.

VELLECHYPALEM, a town of Hindoostan, in Myfore; 13 miles N. of Coimbetore.

VELLEIA, in Botany, received its name from the author of the present article, in honour of his highly valued friend, Col. Thomas Velley, F.L.S., author of a descriptive work on the Submarine Plants of Britain, with coloured plates, in folio, confessing of only one foliaceous. This amiable and accomplished botanist was unfortunately killed by accident, a few years since, in the town of Reading, as he was travelling between Bath and London.—Sm. Tr. of Linn. Soc. v. 4. 217. Brown Prodr. Nov. Holl. v. 1. 580. Labillard. Nov. Holl. v. 1. 54. (Euthales; Brown Prodr. Nov. Holl. v. 1. 579. Ait. Hort. Kew. v. 1. 363.)


Gen. Ch. Cal. Perianth inferior, unequal, either of three or five roundish leaves, or of one leaf in five segments, the upper division largest, permanent. Cor. of one petal, irregular; tube rather longer than the calyx, split longitudinally at the back, almost to the base, more or less tumid, or spurred, underneat; limb in five rather unequal, spreading, bordered, broad-keeled segments, almost two-lipped. Stam. Filaments five, thread-shaped, shorter than the tube, inserted into its membranous base, alternate with the segments of the limb; anthers erect, oblong, unconnected, of two cells, burfting lengthwise. Pijl. Germin superior, turbinate; style angular, rather longer than the flaments; stigma thick, obtuse, encompassed with a membranous, cup-shaped, abrupt integument. Peric. Capsule of one cell and four rigid valves. Seeds several, orbicular, compressed, roughish, imbricated on both sides of a central receptacle, shorter than the valves.

Eff. Ch. Calyx inferior, three or five-cleft, unequal. Corolla tubular, five-cleft, two-lipped; tube cloven at the back. Capsule of four valves and one cell. Seeds imbricated, orbicular, compressed.

Obs. Mr. Brown's Euthales is so strictly united in habit and character, except the calyx, with our Velleia, that we cannot but consider it as of the same natural genus. Our learned friend, from whom we always feruple to differ, has discovered some acknowledged Velleia with five leaves to the calyx, instead of three, originally attributed to it. Here then is an approach toward the five-cleft, though single-leaved, calyx of Euthales. Linnaeus has declared, Phil. Bot. sect. 170, 'Raro observatur genus in quo pars aliqua fructificationis non aberrat.' The calyx appears to be the part in Velleia which runs solid, if we may so translate it, and strikingly confirms the above maxim. We may extend this observation to the whole order of Mr. Brown's Goodenovia, in which even the situation of the calyx, whether superior or inferior, is not uniform; which circumstance must lead us to mistrust different theories in the same part, when not supported by other characters.

VEL

Without attention to such principles as these, we may almost, as Linnaeus says, make as many genera as species of plants.

Seçt. 1. Calyx of one leaf, in five segments. EUTHALES. Brown.

1. V. trierensis. Three-ribbed Velleia. Labill. Nov. Holl. v. 1. 54. t. 77. (Euthales trierensis; Brown Prodr. Nov. Holl. v. 1. 580. Goodenia tenella; Andr. Repof. t. 466. Curt. Mag. t. 1137.)—Calyx tubular, of one leaf, in five acute segments. Leaves downy.—Native of the south coast of New Holland. Sent to Kew Garden in 1803, by Mr. Peter Good. A perennial greenhouse herb, flowering most part of the year. The root is fibrous. Stem none. Leaves all radical, numerous, downy, more or less acute, tapering at the base; sometimes entire; sometimes toothed, or partly runcinate. Flower-flasks numerous, a span high, nearly erect, forked, with a pair of opposite lanceolate bracteas at each division. Flowers stalked, erect, yellow; keel of each segment green underneath; two upper ones marked in front with a dark brown spot; all emarginate; tube white, enclosing the filaments and style. The flowers seem variable in size. We should hardly, without Mr. Brown's authority, have supposed all the above synonyms to belong to the same species.

Seçt. 2. Calyx of five leaves. Corolla with a spur at the base, which is permanent. MENORESAS (a fiction of Velleia) Brown.


Seçt. 3. Calyx of three leaves. Corolla a little gibbous, on one side, at the base. TRUE VELLEIA. Brown.

4. V. lyrate. Lyrate Velleia. Br. n. 3.—Smooth. Bracteas distinct. Leaves lyrate, or sharply toothed at the base. Calyx-leaves roundish-ovate.—Native of Port Jackson, New South Wales. This is our original species of the genus. The leaves, all radical, much refulent those of Cryptis littorum. Stalk; a span high, rigid, once or twice forked; one branch at each fork being sometimes wanting. Bracteas ovato-lanceolate, acute, entire, separate at the base, with a small internal tuft of hairs. Flowers yellow, on short partial flasks. Calyx-leaves quite distinct, acute, nearly entire, a quarter of an inch long, downy within; the upper one rather broadest, and almost orbicular.

5. V. spatulata. Spatulate Velleia. Br. n. 4.—"Smooth. Bracteas distinct. Leaves spatulate, almost without teeth; quite entire at the base; with auxiliary tufts of hairs."—Observed by Mr. Brown near Port Jackson, as well as in the tropical part of New Holland.


7. V. perfoliata. Perfoliate Velleia. Br. n. 6.—"Smooth. Bracteas very large, combined, roundish, toothed."—Found by Mr. Alexander Gordon, in the neighbourhood of Port Jackson, but seen by Mr. Brown in a dried state only.

The whole genus is stemless, and we believe the flowers are all yellow. —None but the first species has hitherto made its appearance in the European gardens, though some of them might possibly prove hardy annuals, if not perennial with us.
VELLEIACIUM, in Ancient Geography, a town of Italy, in the midst of the hills of Gallia Cilipadana, according to Pliny.

VELLEITY, VELLEITAS, in the School Philosophy, is usually defined a languid, cold, and remits will.

Others say, it implies an impotency of obtaining what we require. Others will have it, a slight defire for something, which a person does not esteem much, or is too indolent to seek; as Catus amat pifcem, sed non vult tangerem lympbam.

VELLEIUS, in Biography. See Paterculus.

VELLEKAT, in Geography, rocks in the East Indian tea, about 15 miles E. from the island of Myol. S. lat. 2° 21'. E. long. 131° 2'.

VELLEPEKONDA, a town of Hindoostan, in Coimbatore; 15 miles S. of Varangole.

VELLIA, in Ornithology, a name used by some authors for the lanius minor, or lanius tertius of Aldrovand, called in England the falter.

VELLIAM, in Geography, a town of Hindoostan, in Coimbatore; 16 miles S.E. of Erroad.

VELLICA, in Ancient Geography, a town of Hispania, in the territory of the Tarrassone or Torely.

VELLICATION, among Physicians, the act of twitching or stimulating. The word is more particularly applied to a sort of sudden convulsions that happen to the fibres of the muscles.

VELLICULA. See Foricula.

VELLIN, in Geography, a town of Pomerania; 4 miles N.N.E. of Polnow.

VELLING, in Agriculture, a term applied to the operation or process of ploughing or cutting up and taking off the turf or upper surface of sward land, in order to its being burnt, or for other purposes. It is usually performed nearly in the same manner as baulking or wrel-baulking, except that instead of being turned over, the furrow-slice is, in some cases, cut with its turf upwards; and the work in this process is in effect the same thing; but as the outer point of the wing of the share in the plough is turned upwards, there is left necessity for holding it an oblique position.

The plough too in executing this operation, is always turned to the right upon the head-land, which is contrary to that which is practised in skirting, the slice or furrow being turned towards the ploughed instead of the unploughed land. In velling, the plough is thrown far into the land from the line of draught, as to enable the ploughman to carry with care about twice as much land as is displaced by the ploughed slice, which is pared very thin and even, and on the land side not cut so deep as in the operation of skirting, but gradually lifted and turned nearly on its green side upon the baulk, left on the right-hand or furrow side of the plough. This manner of ploughing, in contradistinction to splitting, is called, in some districts, gathering of the land; and the day-work five or six roods. See Splitting.

In cafes where the furrow-slice is not turned, it is in some places drawn out with small hooks, by the labour of women and boys, or hoarded, and then raked together in heaps, and burned. This is a mode of velling which is commonly adopted in cafes where there is not time to permit the turf or sod to rot, as is the case in other methods of practice. See Paring and Burning, and Turning to Rot.

VELLO, in Geography, a town of Italy, in the Veneto; 10 miles N. of Verona.

VELLON, in Commerce, a kind of money, in which accounts are kept in many parts of Spain. The real vellon is the most general money of account: it consists of 8½ quarts, 17 obolos, or 34 maravedis vellon. Madrid, and all Castile, with most of the adjacent provinces, and also Bilboa, Malaga, and Gallicia, keep accounts in reals and maravedis vellon. See MARAVEDI and REAL.

VELLOUL, in Geography, a town of Hindoostan, in Guzerat, on the coast; 9 miles W.N.W. of Puttan Sumnaut.

VELLUM. See VELOM.

VELLUM, in Geography, a town of Hindoostan, in the Carnatic; 5 miles S.W. of Tanjore. N. lat. 10° 43'; E. long. 70° 7'.

VELLY, Paul-Francis, in Biography, was born near Fives, in Champagne, in 1711. Quitting the society of Jefuits after having belonged to it for about eleven years, he devoted himself to historical researches. His chief work was his "Histoire de France," in 8 vols., written in an easy and correct style, and possessing the character of candour and truth. He is charged, however, with too often attacking the privileges of the clergy, and with having borrowed freely from Voltaire's Essay on General History, and with having been misled in some instances by adopting his sentiments. This history, which he terminated with Charles le Bel, was continued to the 16th volume by Villaret. He also published a translation of Swift's "Hilfory of John Bull." He was virtuous and amiable, and of a very cheerful disposition. His death happened in 1759.

VELMES, in Geography, a town of France, in the department of the Dordogne; 15 miles S.W. of Muclian.

VELOCE, Itali., in Music, swift; Velocimacro, superl. very swift.

VELOCITY, in Mechanics, quantity: that aection of motion, by which a moveable is disposed to run over a certain space in a certain time.

It is also called celerity, and is always proportional to the space moved.

Huygens, Leibnitz, Bernouilli, Wolthus, and the foreign mathematicians hold, that the momenta, or forces, of falling bodies, at the end of their falls, are as the squares of their velocities into the quantity of matter: the English mathematicians, on the contrary, maintain them to be as the velocities themselves into the quantity of matter. See Motion.

Velocity is conceived either as absolute or relative: the velocity we have hitherto considered is simple or absolute, with respect to a certain space moved in a certain time. Relative or respective velocity, is that with which two distant bodies approach each other, and come to meet in a longer or less time; whether only one of them moves towards the other at rest, or whether they both move: which may happen two ways, either by two bodies naturally approaching each other in the same right line, or by two bodies moving the same way in the same line, only the foremost flower than the other: for, by this means, this will overtake that; and as they come to meet in a greater or less time, the relative velocity will be greater or less. Thus, if two bodies come nearer each other by two feet in one second of time, their respective velocity is double that of two others, which only approach one foot in the same time.

Velocity is also uniform or equal, when a moving body passes through equal spaces in equal times; or unequal, when in equal times it passes through unequal spaces; in which case it is either accelerated or retarded; and this acceleration, or retardation, may also be equal or unequal. See Acceleration and Motion.
VELOCITY.

In the doctrine of fluxions, it is usual to consider the velocity with which magnitudes flow, or are generated. Thus the velocity with which a line flows, is the same as that of the point which is supposed to describe or generate the line. The velocity with which a surface flows, is the same as the velocity of a given right line, that, by moving parallel to itself, is supposed to generate a rectangle, always equal to the surface. The velocity with which a solid flows may be measured by the velocity of a given plane, that, by moving parallel to itself, is supposed to generate a cylinder, always equal to the solid. The velocity with which an angle flows, is measured by the velocity of a point, supposed to describe the arc of a given circle, which subtends the angle, and measures it. See Macl. Fluxions, book i. chap. 1.

All these velocities are measured at any term of the time of the motion, by the spaces which would be described in a given point of time, by these points, lines, or surfaces, with their motions continued uniformly from that term.

The velocity with which a quantity flows at any term of the time, while it is supposed to be generated, is called its fluxion. See Fluxion.

**VELOCITIES OF BODIES MOVING IN CURVES.** According to Galileo's system of the fall of heavy bodies, which is now abounded by all philosophers, the velocities of a body falling vertically are, each moment of its fall, as the roots of the heights from whence it has fallen; reckoning from the beginning of the fall. Hence that author inferred, that if a body fall along an inclined plane, the velocities it has, at different times, will be in the same ratio; for since its velocity is altogether owing to its fall, (and it only falls as much as there is perpendicular height in the inclined plane,) the velocity should be measured by that height as if it were vertical. See Inclined Plane.

The same principle, likewise, led him to conclude, that if a body fall through two contiguous inclined planes, making an angle between them, much like a fence when broken, the velocity would be regulated after the same manner, by the vertical height of the two planes taken together; for it is only this height that it falls; and from its fall it has all its velocity.

This conclusion was universally admitted till the year 1693, when M. Varignon demonstrated it to be false. From his demonstration it should seem to follow, that the velocities of a body falling along the cavity of a curve, for instance, of a cycloid, ought not to be as the roots of the heights, since a curve is only a series of an infinity of infinitely little contiguous planes, inclined towards one another; so that Galileo's proposition would seem to fail in this case too; and yet it holds good, only with some restriction.

All this mixture of truth and error, so near akin to each other, shewed that they had not got hold of the first principle; M. Varignon, therefore, undertook to clear what related to the velocities of falling bodies, and to set the whole matter in a new light. He still supposes Galileo's first system, that the velocities, at the different times of a vertical fall, are as the roots of the corresponding heights. The great principle he makes use of to attain his end, is that of compound motion.

If a body fall along two contiguous inclined planes, making an obtuse angle, or a kind of concavity between them; M. Varignon shews, from the composition of those motions, that the body, as it meets the second plane, loses somewhat of its velocity, and, of consequence, that it is not the same at the end of the fall, as it would be, had it fallen through the first plane prolonged; so that the proportion of the roots of the heights affected by Galileo does not here obtain.

The reason of this loss of velocity is, that the motion, which was parallel to the first plane, becomes oblique to the second, since they make an angle: this motion, which is oblique to the second plane, being conceived as compounded, that part perpendicular to the plane is lost, by the opposition thereof, and part of the velocity along with it; consequently, the less of the perpendicular there is in the oblique motion, or, which is the same thing, the less the two planes are from being one, i.e. the more obtuse the angle is, the less velocity does the body lose.

Now all the infinitely little, contiguous, inclined planes of which a curve consists, making infinitely obtuse angles among themselves; a body falling along the concavity of a curve, the loss of velocity it undergoes each instant is infinitely little; but a finite portion of any curve, how little soever, confining of an infinity of infinitely little planes, a body moving through it loses an infinite number of infinitely little parts of its velocity; and an infinity of infinitely little parts makes an infinity of a higher order, i.e. an infinity of infinitely little parts makes a finite magnitude, if they be of the first order or kind; and an infinitely little quantity of the first order, if they be of the second, and so in infinitum. Therefore, if the losses of velocity of a body, falling along a curve, be of the first order, they will amount to a finite quantity; in any finite part of the curve, &c.

The nature of every curve is abundantly determined by the ratio of the ordinates to the corresponding portions of the axis; and the essence of curves in general may be conceived as confining in this ratio, which is variable in a thousand ways. Now this same ratio will be, likewise, that of two simple velocities, by whose concurrence a body will describe any curve; and, of consequence, the essence of all curves, in the general, is the same thing as the concourse or combination of all the forces, which, taken two by two, may move the same body. Thus we have a most simple and general equation of all possible curves, and of all possible velocities.

By means of this equation, as soon as the two simple velocities of a body are known, the curve resulting from them is immediately determined. It is observable that, according to this equation, an uniform velocity, and a velocity that always varies according to the roots of the heights, produce a parabola, independent of the angle made by the two projectile forces that give the velocities; and, consequently, a cannon-ball, shot either horizontally or obliquely to the horizon, must always describe a parabola. The best mathematicians, hitherto, had laboured much to prove, that oblique projections formed parabolas as well as horizontal ones.

To have some measure of velocity, the space is to be divided into as many equal parts as the time is conceived to be divided into; for the quantity of space corresponding to that division of time, is the measure of the velocity. For an instance: suppose the moveable A passes through a space of 80 feet in 40 seconds of time: dividing 80 by 40, the quotient 2 shows the velocity of the moveable to be such, as that it passes over an interval of two feet in one second; the velocity, therefore, is rightly expressed by \( \frac{2}{2} \); that is, by 2. Suppose, again, another moveable B, which in 30 seconds of time travels 90 feet; the index of the celerity will be 3. Wherefore, since in each case the measure of the space is a foot, which is supposed every where of the same length, and the measure of time a second, which is conceived every where of the same duration, the
the indices of the velocities 2 and 3 are homogeneous, and therefore the velocity of A is to the velocity of B, as 2 to 3.

Hence, if the space be \( t \), and the time \( t \), the velocity may be expressed by \( \frac{e}{t} \); the space being in a ratio of the time and the velocity. See Motion.

**Velocity, Circular.** See Circular.

**Velocity, Initial, in Gunnery,** denotes the velocity with which military projectiles issue from the piece by which they are discharged. This is now known to be much more considerable than was formerly apprehended. For the method of estimating it, and the result of a variety of experiments by Mr. Robins, Dr. Hutton, &c. see Gun, Gunnery, Projectile, and Resistance.

We shall here add, that Mr. Thompson (Count Rumford) has lately published the result of a variety of experiments upon gunpowder, and also an account of a new method of determining the velocities of all kinds of military projectiles. From the equality of action and reaction, it appears, says Mr. Thompson, that the momentum of a gun must be precisely equal to the momentum of its charge; or that the weight of the gun, multiplied into the velocity of its recoil, is just equal to the weight of the bullet and of the powder (or the elastic fluid that is generated from it) multiplied into their respective velocities: for every particle of matter, whether solid or fluid, that issues out of the mouth of a piece, must be impelled by the action of some power, which power must react with equal force against the bottom of the bore.

It is easy to determine the velocity of the recoil in any given case, by suspending the gun in a horizontal position by two pendulous rods, and measuring the arc of its ascent by means of a ribbon, according to the method which Mr. Thompson has described, and this will give the momentum of the gun, its weight being known, and consequently the momentum of its charge.

But in order to determine the velocity of the bullet from the recoil, it will be necessary to find how much the weight and velocity of the elastic fluid contribute to it. That part of the recoil which arises from the expansion of this fluid is always very nearly the same, whether the powder is fired alone, or whether the charge is made to impel one or more bullets, as Mr. Thompson has determined by various experiments.

If, therefore, a gun, suspended according to the method proposed, is fired with any given charge of powder, but without any bullet or wad, and the recoil is observed; and if the same piece is afterwards fired with the same quantity of powder, and a bullet of a known weight, the excess of the velocity in the latter case above that in the former, will be proportional to the velocity of the bullet; for the difference of these velocities, multiplied into the weight of the gun, will be equal to the weight of the bullet multiplied into its velocity.

Accordingly, if \( W \) is put for the weight of the gun; \( U \), for the velocity of its recoil, when it is fired with any given charge of powder, without any bullet; \( V \), for the velocity of the recoil when the same charge is made to impel a bullet; \( B \), for the weight of the bullet; and \( w \) for its velocity; we shall have \( v = \frac{V - U \times W}{B} \). Let \( B = 580 \) grains, \( W = 336,000 \) grains; and, therefore, \( B : W :: 580 : 336,000 \);

\[ i.e. : 1 = 579,31 \text{ nearly, and } V - U \text{ is found by experiment to be equal to } 1.8522; \text{ and, consequently, } v = 1.8522 \times 579.31 = 1073 \text{ feet in a second; which is very near } 108 \text{ feet in a second, the mean of the velocities determined by the pendulum after the manner of Mr. Robins.}

But the theorem will be rendered more simple by putting \( c \) for the chord of the recoil in English inches, when the piece is fired with powder only, and \( C \) for the chord when a bullet is discharged by the same charge; and then

\[ C - c \text{ will be as } V - U; \text{ and consequently, as } \frac{V - U \times W}{B} \]

which measures the velocity of the bullet, the ratio of \( W \) to \( B \) remaining the same.

Supposing, therefore, \( C - c = 1 \) inch, and the velocity of the bullet to be computed from that chord; the velocity in any other case, in which \( C - c \) is greater or less than one inch, will be found by multiplying the difference of the chords \( C \) and \( c \) by the velocity that answers to a difference of one inch. Or the velocity of the bullet, expressed in feet per second, may in all cases be found by multiplying the difference of the chords \( C \) and \( c \) by 118.35; the weight of the barrel, the length of the suspending rods, and the weight of the bullet, remaining the same, whatever be the charge of powder or its strength.

According to this rule, Mr. Thompson has computed by several experiments the velocities of bullets from the recoil, and compared them with the velocities obtained by the pendulum. The result, making the necessary allowances for the difference in the conclusions arising from these two methods, leads Mr. Thompson to infer, that there is the greatest probability that the velocities of bullets may in all cases be determined by the recoil with great accuracy; and if this method succeeds with musquet-bullets, it may also be applied as well to cannon-balls and bomb-shells of the large dimensions: he apprehends also, that it will be much preferable to any other method hitherto known, not only as it may be applied indifferently to all kinds of military projectiles, with little trouble or expense, but also because by this method the velocities with which bullets are actually projected are determined; whereas, by the pendulum, their velocities can only be ascertained at some distance from the gun, after they have lost a part of their initial velocities by the resistance of the air through which they are obliged to pass to arrive at the pendulum.

Those who advert to what has been delivered under the article Gunnery, will find that, according to Mr. Robins's theory, farther confirmed by Dr. Hutton's experiments, when bullets of the same diameter, but different weights, are discharged from the same piece by the same quantity of powder, their velocities should be in the sub-duplicate ratio of their weights.

But this theory, says Mr. Thompson, is founded upon a supposition, that the action of the elastic fluid, generated from the gunpowder, is always the same in every given part of the bore when the charge is the same, whatever may be the weight of the bullet; and as no allowance is made for the expenditure of force required to put the fluid itself in motion, or for the loss of it by the vent, he concludes that the theory is defective. And from a variety of experiments, made with a view of ascertaining this point, he infers, that the ratio of the velocities of bullets to their weights is different from that which Mr. Robins's theory supposes; and from other experiments he finds, that the velocities computed, according to the reciprocal sub-duplicate ratio of the weights, agree much better with the result of experi-
duced from those experiments, than those computed upon
Mr. Robins's principles; though, in this mode of com-
putation, the difference between the actual and computed vel-
cocities was in some of the experiments inconsiderable. But
as the powder itself is heavy, it may be considered as a
weight put in motion along with the bullet; and if the
density of the generated fluid be supposed always uniform
from the bullet to the breech, the velocity of the centre
of gravity of the powder, or of the elastic fluid, and the gros
matter generated from it, will be just half as great as the
velocity of the bullet; putting, therefore, $P$ to denote the
weight of the powder, $B$ the weight of the bullet, and $v$
it initial velocity; then $B v + \frac{1}{2} P v = B + \frac{1}{2} P \times v$
will express the momentum of the charge at the instant when
the bullet quits the bore. Instead, therefore, of acertaining
the relation of the velocities to the weights of the bullets,
he proposes to add half the weight of the powder to the
weight of the bullet, and to compute the velocities from
the reciprocal sub-triplicate ratio of the quantity $B + \frac{1}{2} P$:
and the result of several experiments shows an agreement
between the actual and computed velocities that is very
remarkable.

We shall only add, that Mr. Thompson disputes the juj-
ness of Mr. Robins's conclusion with respect to the force
of gunpowder, which makes it 1000 times greater than the
mean preflure of the atmosphere; whereas, from the refult
of one of his experiments, its force appears to be at least
1508 times greater than the mean preflure of the atmosphere.
Phil. Trans. vol. lxxi. part ii. p. 329—332.

**Velocity, Measure of.** See Measure.

**Velocity of Light, Sound, Wind, &c.** See Light,
Sound, Wind, &c.

**VELOM, or VELLUM, is a kind of parchment (which
see), that is finer, evener, and more white than the common
parchment.

The word is formed from the French velin, of the Latin
vitulinus, belonging to a calf. See Artorive.

For regulations relating to makers of vellum, and duty
on the same, see Leather.

**VELORE, in Geography, a town of Hindooflan, in the
Carnatic; 14 miles W. of Arcot. N. lat. 12° 54'. E.
long. 79° 15'.

**VELOSO, a town of Portugal, in the province of
Bora; 14 miles S. of St. Joao da Pesqueira.

**VELPE, a river of Brabant, which joins the Dener,
at Halen.

**VELPI, in Ancient Geography, mountains of the Cy-
renaica, on the confines of Africa Propria. These mount
ains were inhabited by the Macatuce, according to Ptol.
my.

**VELSER, or WELSER, Mark, in Biography, was born
at Augsburg, of an ancient and opulent family, in 1558,
and educated at Rome under the celebrated Muret. Upon
his return to his native city he practifed at the bar, and be
came a feator in 1592, and having attained the highest rank
in the government of the city, he was regarded as its chief
ornament; nor was he left difguifed as the promoter of
literature and science. He died in 1614, at the age of 56.
The principal of his works, which are numerous, are "Re-
rum Auguitanae Vindelicarum Libr. VIII." Venet. 1594,
and "Rerum Boicarum Libri V." Aug. Vind. 1602. He
was a principal contributor to Gruter's Collection of In-
scriptions, and he aided many others in their publications.
A collection of his writings was published in a folio volume

**VELT, or VELTE, in Commerce, a measure for brandy
in several parts of France. At Bourdeaux, brandy is con-
tained in caills of 50 vels, more or lefs; but it is fold by
the barrique of 32 vels, or about 60 English gallons: 5
velts proof of Bourdeaux make 4 velts proof, by which it
is fold in London. At Cognac, it is fold by the 27 velts;
and 11 velts proof of Cognac make 10 velts proof, by which
it is fold in London. At Rochelle, brandy from this place,
Cognac, Isle de Rhe, and the river Charente, is in caills of
3 barriques, containing in all 75 or 90 velts, and is fold
by the 27 velts: 16 velts = about 31 English gallons. At
Bourdeaux, 1.64 barrique = 100 English gallons, and each
barrique measures 14.033 cubic inches: 52.74 velts = 100
English gallons, and each velt = 438 cubic inches. At
Cognac, 51.68 velts = 100 English gallons, and each velt
measures 447 cubic inches. At Nautes, 67.34 velts = 100
English gallons, and each velt measures 343 cubic inches.

**VELTE, in Ancient Geography, a people of European
Sarmatia, in a part of the Venedic gulf.

**VELTHAUSEN, in Geography, a town of Ger-
many, in the county of Bentheim; 2 miles N.N.E. of
Nienhuis.

**VELTHEMIA, in Botany, received its name from
professor Gleditsch, in the Berlin Transfections for 1769,
in compliment to a German nobleman, Augustus Ferdinand
von Veltheim, author of several mineralogical works, and
reported to have been also a lover and patron of botany.—
Poiriet in Lam. Dict. v. 8. 448.—Clafs and order, Hexa-
Jaff.

Gen. Ch. Cal. none. Cor. of one petal, tubular, nearly
cylindrical; limb regular, in fix very short, broad, almoft
equal, segments. Stam. Filaments fix, thread-faded, in-
tered into the tube and not projecting beyond it; anthers
ovate, cloven at the base. Pfl. German superior, roundifh;
style thread-faded, declining; stigma simple, acute. Perti.
Capfule membranous, somewhat pellucid, three-lobed, three-
seelled, each lobe extended into a compreffed rounded wing.
Seed mostly follicular, obovate, rather compreffed.

Eff. Ch. Corollis tubular, with fix teeth. Stamens in-
tered into the tube. Capfule membranous, with three
wings, and three cells, with follicular fees.

Ofb. This genus, confounded by Linnaeus with his
Aletris, is well separafed therefrom, as well as from Tri-
toma, (fee thofe articles,) both on account of their habits
and characters. The genuine Aletris has a funnel-faded
corollaf, into the bafe of whose segments the
flaments are inferted; and many feeds in each cell of the cap-
fule. Trifoma is diftinguifhed by its long flaments, inferted
into the recepftacle, and projecting far out of the flower.

Ait. n. 1. Jacq. Hort. Schoenbr. v. 1. 41. t. 78. (V. ca-
penis; Redout. Liliac. t. 193. Aletris capenis; Linn.
Sp. Pl. 456. Curt. Mag. t. 501. )—Leaves lanceolate, ob-
tufe, with wavy plates. Teeth of the corolla rounded, eret.

—Native of the Cape of Good Hope, from whence its
bulbs are faid to have been first imported into this country
in 1768, by the late Mr. Malcolm. The plant is now frent
in molt good greenhoufes, flowering copiously in the winter
and spring, yet it is not evenly increafed, either by root or
by fee. The bulb is ovate, larger than a hen's egg.

Leaves numerous, all radical, spreading, smooth, a fpan
long,
long, entire, broadly undulated; of a deep grays-green above; pale and glaucous beneath. Stalk solitary, erect, straight, naked, eighteen or twenty inches high, elegantly spotted and streaked with blood-red or purple, bearing a long, dense, ovate _chryfis_, of pendulous inodorous _flowers_, each accompanied by an awl-shaped pink _bractea_, much longer than its _flalk_. The _corolla_ is of a waxy pink, or glaucous rose-colour, pale yellow, or greenish, without the extremity; its length about an inch and a half. _Capsules_ nearly the same length, of a tender bladdery texture, pale and pellucid, so as to shew the black _seeds_ within.

2. V. _glauca_. Glaucous-leaved Veltheimia. Willd. n. 2. Alt. & n. 3. Curt. Mag. t. 1991. Jacq. Hort. Schoenbr. v. t. 40. t. 77. ( _Aletris glauca_; Alt. ed. 1. v. t. 463.) Leaves lanceolate, glaucous, tipped with a small point; somewhat crisped at the margin. Teeth of the corolla spreading.—Native likewise of the Cape of Good Hope, from whence it was brought to Kew garden by George Wyngh, ed. in 1781, being among the many new species of plants, chiefly from that country or from America, for the knowledge of which the botanical world is indebted to the late Mr. Aiton, and his learned coadjutors, in the first edition of the _Hortus Kewensis_. The number of _Vellum_ is greatly increased in the second edition, principally from New Holland and the East Indies. No work of the kind has furnished so many. The plant before us differs from the preceding in having a more oblong pointed _bulb_; much straighter and more erect _leaves_, glaucous on both sides, whole marginal undulations are flight and very small. The _flowers_ are smaller, paler, and less _showy_; their marginal _stigma_ more expanded. This is much more rare than _V. viridifolia_, being more difficult of culture and less handsome. It flowers from January to April. For the two other species referred to this genus by Willdenow, _Uvaria_ and _pumila_, see _Tritoma_.

VELTZEN, or _Ulzen_, in _Geography_, a town of Westphalia, in the principality of Luneburg; 20 miles E. of Luecko.

VELVALEG, a town of Grand Bucharia; 5 miles S. of Archenk.

VELUCA, in _Ancient Geography_, a town of Hifpania Citerior, belonging to the Arevaci. Torey. _Velvet_, a rich kind of stuff, all _ilk_, covered on the outside with a _clofe_, short, fine, _soft flage_, the other side being very strong and close.

The word is formed of the French _velours_, which signifies the _name_, and which comes from _velis_, a thing covered with hair. The _knop_ or _flage_, called also _velowing_, of this stuff, is formed of part of the threads of the warp, which the _workman_ puts on a long narrow _channelled ruler_, or _needle_, or _wire_; and which he afterwards cuts, by drawing a sharp _steel tool_ along the channel of the needle to the ends of the warp.

The principal and best manufactories of _velvet_ are in France and Italy, particularly at Venice, Milan, Florence, Genoa, and _Lucca_; there are others in Holland, set up by the French refugees, of which that at _Haerlem_ is the most considerable.

Velvets are now made to great perfection at Manchester and other parts of England. There are some brought from China, but they are the worst of all.

There are velvets of various kinds, as plain, that is, uniform and smooth, without either figures or stripes:—figured, that is, adorned and worked with divers figures, through the ground be the same with the figures; that is, the whole surface velveted:—_ramages_, or _branched_, representing long stalks, branches, &c. on a satin ground, which is sometimes of the same colour with the velvet, but more usually of a different one. Sometimes, instead of _fattin_, they make the ground of gold and silver, whence the denominations of _velvet with gold grounds_, &c.:—_unet_, that in which the threads that make the velveted, have been ranged over the channelled ruler, or wire, but not cut there:—_striped_, that in which there are stripes of divers colours running along the warp; whether those stripes be partly velvet and partly _fattin_, or all _velvet_;—_cut_, that in which the ground is a kind of _taffety_, or gros de Tours, and the figures velvet.

Velvets are likewise distinguished with regard to their different degrees of strength and goodness, into velvet of four threads, three threads, two threads, and a thread and a half: the first are those where there are eight threads of _flag_, or _velvetings_, to each tooth of the reed; the second have only six, and the rest four.

In general, all velvets, both worked and cut, _thorn_ and flowered, are to have their warp and _flage_ of _organzine_, spun and twilled, or thrown in the mill, and their _woof_ well boiled, &c. They are all of the same _breadth_.

VELUM, in _Ecclesiastical Writers_, the name with what is otherwise called _branдумал._

VELUM _Quadrageminate_, a veil or piece of hangings, anciently drawn before the altar in Lent, as a token of mourning and forrow.

VELUM, in _Anatomy_, a part in the brain. See _Brain._

VELUM _Pallatii_, or _Pendulum_, the soft palate. See _Deglutition._

VEMANIA, called _Viana_ by Ptolemy, in _Ancient Geography_, a place of Rhetia, upon the route from Pannonia in the _Gauls_, in passing by _Sopiance_, between Cambodunum and Brigantia. In. Anton.

VEMMETSTOSTE, or WEMMELSTOSTE, in _Geography_, a town of _Bucharia_, in the _coast_ of the island of Zealand; 6 miles S.W. of _Heding_.

VEMPSUM, in _Ancient Geography_, a town of Italy, in Latium. _Ptolemy_.

VEN, in _Geography_, a town of _Naples_, in _Calabria_; 9 miles N.E. of _Squillace_.

VEN, in _Mythology_. See _VINO_.

VEN, _Vein_, in _Anatomy_. See _VEIN_.

VENABULUM, in _Antiquity_, a long kind of _speur_, used in hunting wild beasts.

VENE LACITER, in _Anatomy_, the absorbing vessels, so called because they were suppos'd to be veins. See _Lacra Vaia._

VEN._ _LYMPHATICA_. See _Lymphatics._

VENAFRO, in _Geography_, a town of _Naples_, in _Lavora_, the see of a bishop, _infrigran_ of _Capua_; 14 miles N. of _Sezza_. N. lat. 41° 30'. E. long. 15° 58'.

VENAFEUF, ( _Venafro_ ), in _Ancient Geography_, a town of Italy, in _Campagna_, northwards, towards the _Samnium_, which became a Roman colony. It was famous for its olives and oils.

VENAISSIN. _Count of_, _County of_, _Venaissin_, in Geography, a country of France, bounded on the N. by the department of the _Drôme_, on the E. by the department of the Lower Alps, on the S. by the department of the _Mouths of the Rhône_, and on the W. by the _Rhône_, which separates it from the department of the Gard, about 12 leagues in length, and 5 in breadth. It takes its name from _Venaissin_, the _Vendange_ or _Vendasea_ of the _seigneurs_, and was polled, after the 11th century, by the counts of _Tomblay_.

VENS VEN. VEN. VENS._ _LYMPHATICA_. See _Lymphatics._
VENAL, or VENOUS, among Anatomists, something that bears relation to a vein.

The extremities of the cava and pulmonary veins, where they enter the auricles of the heart, are called venous sinu. See Venes. - VENAL. - VENAL, formed from venalis, to be sold, is also used for something bought with money, or procured by bribes.

Thus we say, venal bands; court ezans and flatterers are venal; even justice, in Turkey, is venal, and must be bought of the baflaws.

In England, there are several offices in the revenue, policy, &c. venal; but this vanity of offices is no where so considerable as they were in France, where all offices of judicature were bought of the king, and only municipal officers are elected. Offices in England are venal only by a kind of connivance; in France it was a thing solemn and authorized. The vanity was first introduced by Louis XII., who, to clear those immense debts contracted by his predecessor Charles VIII., without burdening his people with new taxes, bethought himself to sell the offices of finance; and, in reality, he made a vall fum by it; but he forbad, by an edict in 1568, the sale of offices of judicature. Francis I. made an advantage of the same expedient to get money, and fold his pofts, not excepting the offices of judicature, openly: under this king, it was only accounted a kind of loan; but that loan was no more than a name to dignifie a real fale. However, it is faid, that the sale of offices of judicature was established by edicts of Charles IX. and that military offices were fold under the reign of Henry III.

The parliament, not being able to rehali the vanity of offices, always made the buyer take an oath that he did not buy his poft, either direcdy or indirectly; but there was a tacit exception, made of monies lent the king for being put into them. At length the parliament, finding its oppositions were in vain, and that the trafficking of offices was publicly authorized, abolished the oath in 1597.

VENAMALI, in Mythology. See VANAMALI.


Gen. Ch. Col. Perianth inferior, of one leaf, cup-shaped, short, with five rounded marginal lobes. Cor. Petals five; regular, obovate, rounded, spreading, three to the length of the calyx. Stam. Filaments five, awl-shaped, dilated at the base, the length of the petals; anthers oval, veritable, incumbent. Fil. Germ. superior, ovate; style short and thick; stigma obtuse, nearly triangular. - Recept. befit with numerous brillers, about half as long as the stamens, surrounding the pistil. Peri. and sepal. unknown.


1. V. MADAGASCARIENSIS. - Native of Madagaftar, as its uncouth specific name denotes, where it was found by Commeron. The stem is arborescent, with alternate, cylindrical, smooth branches. Leaves simple, alternate, falced, obtuse, obtuse, entire, smooth, an inch or two long, with one rib and many finer transverse veins. Clyfters terminal, their partial flanks alternate, an inch or two in length, compressed, gradually, though slightly, dilated upwards, smooth, each bearing a little terminal head, of eight or ten small feline flowers.

VENANGO, in Geography. See Fort Franklin.

VENANGO, a county of Pennsylvania, containing eight townships, with 3060 inhabitants. Fort Franklin is the chief place. - Also, a township of Pennsylvania, in Crawford county, containing 474 inhabitants: the county contains 6178. - Also, a township of Pennsylvania, in Butler county, containing 377 inhabitants.

VENANT, St. See St. Venant.

VENANDUS HONORIUS FORTUNATUS, in Biography, a Chirlian poet of the sixth century, was born near Trivigi, in Italy, studied at Ravenna, and became eminently skilful in grammar, rhetoric, and poetry. Superficionally conceiving that he had obtained relief in a disorder of his eyes at the intercession of St. Martin, he wrote the history of that saint in verse. At Poitiers he was ordained priest about the year 1565, and afterwards elected bishop of that church. He is supposed to have died about the beginning of the seventh century, and an annual festival is kept at Poitiers in honour of his memory.

His works are mostly written in verse. His prose-writings are chiefly the lives of saints. Father Brower, a Jefuit, published his works in one vol. 4to. 1616, and they were also published by M. A. Luchi, at Rome, in 2 vols. 4to. 1786-87. His poems have found a place in the Corpor Poetarum of Mattaire. Nouv. Dict. Hilt. Gen. Biog.

VENASCA, or VENASCUS, or Benafia, in Geography, a town of Spain, in Aragon, on the river Ebro, in a valley to which it gives name, on the frontiers of France; 45 miles N. of Balbano.

VENASII, in Ancient Geography, a people of Asia, in Cappadocia. Strabo.

VENASQUE, in Geography, a town of France, in the department of the Vaucue, formerly the capital of the Venassin, on the Naque; 14 miles E.N.E. of Avignon.

VENCATIGHERRY, a town of Hindooftan, in Mysore; taken in 1791 by the Britifh, under captain Read; 51 miles E. of Bangalore. N. lat. 12° 57'. L. long. 78° 38'. - Also, a town of Hindooftan, in the Carnatic; 23 miles S.W. of Nellore. N. lat. 14° 3'. L. long. 79° 6'.

VENCATRAM, a town of Hindooftan, in Mysore; 25 miles E. of Hydooog.

VENCE, a town of France, in the departament of the Var. Before the revolution, the fee of a bishop, suffragan of Embrun; 6 miles N.E. of Graife.

VENCU, in Botany, the Chinefe name for an excellent fruit found in that country, which the Portuguese call jamboas, and the Dutch pompoenoe. It grows on prickly trees, like the limon-tree, only larger. Its flowers are white, exactly the fame in shape with thofe of the limon, and have an exceeding fweet smell; a very fragrant water is diffilled from them. The fruit itself far exceeds the citron
citron in bulk, being in size equal to, and sometimes exceeding a man's head; the rind is like that of the golden rennet; the pulp is of a reddish colour, and its taffie takes of sweet and acid, resembling that of grapes not fully ripe. A liquor is pressed from it, as in Europe from apples, pears, &c. It will keep for a whole year.

VENDEE, in Law, the perilon to whom any thing is sold, in contradistinction to vendor, or the seller.

VENDEE, in Geography, a river of France, which rises about eight miles N.N.E. from Fontenai-le-Comte, and runs into the Seve Niortois, about a mile E. of Marans.

VENDEE, one of the nine departments of the western region of France, formerly Lower Poitou, lying between Charente and Lower Loire, in N. lat. 40° 32'; bounded on the N. by the departments of the Lower Loire and Mayne and Loire, on the E. by the department of the Two Sevres, on the S. by that of the Lower Charente, and on the S.W. and W. by the sea. Its territorial extent is 7,442½ square kilometres, or 3,775 square leagues, and the number of its inhabitants is 270,271.

This department, watered by many copious streams, is one of the most fertile in France. It is divided by nature into the thicket, the marsh, and the plain. The first, so called on account of the great quantity of wood that covers it, includes nearly five-ninths of the whole territory. Its soil is of various qualities, yielding grain, wine, and excellent pastures. The second, lying on the W. and S. coasts, formerly covered by the sea, is impregnated with saline subfiances. Nevertheless it is fertile, producing plentiful crops of grain, flax, hemp, and pastures. The third is a fertile and well-cultivated strip of land, inclosed between the thicket and the S. border of the department. 

Bouin, an island containing about three square leagues, participates in all the qualities of the marsh. It was separated, not many years ago, from the main land by a narrow channel, which has now almost disappeared. Rainwater (which fees) is a fertile soil containing about three square leagues, opposite the city of Poitiers. It has a port capable of receiving vessels of fifty or sixty tons. But down on fine sand, near its N.W. coast, are frequently raised by the wind, and driven into the interior part of the island. Sfis Dieu is a very small island, covered with a thin bed of vegetable foil, mixed with sand, and not productive.

VENDELYA, in Ancient Geography, a town of Hispания Citerior, belonging to the Antirgones. Ptolem. 

VENDELION, in Geography, a town of the island of Ceylon; 64 miles N.E. of Candi. 

VENDEN, a mountain of the Tyrolese; 14 miles N.N.E. of Brixen.

VENED, a town of Ruffia, in the government of Riga, on the Aa. In the year 1572, Magnus, duke of Holstein, was brought to this town by Ivan Vafilikievitch H. cesar of Ruffia, to be made king of Livonia; but the new monarch was prevailed upon by his subjects, ever averse to the Russian yoke, to form a secret alliance with the king of Poland, and to counteract the cesar's progress in Livonia. Ivan, soon apprized of this negociation, laid immediate force to Venden, with fo numerous an army, that the inhabitants, finding all opposition ineffectual, proposed to capitulate. Magnus himself carried the terms of capitulation, and advancing to suplicate the incensed monarch, threw himself at his feet, and interceded for the town. The cesar, spurning at him with his foot, and striking him in the face, loaded him with reproaches for his ingratitude, and ordered him to prison; then entering the town, his troops committed every species of horror and devastation. Many of the principal inhabitants, retiring into the citadel, determined to defend it to the last extremity; but soon perceiving all Avitance to be fruitless, and expecting no quarter, they calmly assembled, received the sacrament, and then destroyed themselves, by blowing up the citadel; 36 miles N.E. of Riga. N. lat. 59° 12', E. long. 25° 14'.

VENENISES, in Ancient Geography, a town of Upper Moravia, at a distance from the Danube. Ptolem. 

VENDEVIL, in Geography, a town of France, in the department of the Aine; 8 miles S. of St. Quintin. 

VENDITIONI EXPONAS, in Law, is a judicial writ, directed to the sheriff, commanding him to sell goods, which he has formerly, by commandment, taken into his hands, for the satisfying of a judgment given in the king's court.

VENIDITORE REGIS, the king's scribe, or person who exposed to sale goods or chattels seized or disfrained to answer any debt to the king. This office was granted by king Edward I. to Philip de Lardimer, in the county of York, "Ita quod ipse, vel certus suus aturnatus, ibid mandatum viccomitis de loco in locum infra com. prad. summibus fuis, ad venditiones faciendas, & capitat de unaque venditione pro feudo tuo xxii. den.," but the office was feigned into the king's hands for the abuse thereof, anno 2 Ed. II.

VENEOUVRES, in Geography, a town of France, in the department of the Aube; 11 miles W. of Bar-sur-Aube.

VENDOME, a town of France, and principal place of a distriict, in the department of the Loir and Cher, on the Loir. Before the revolution, it gave name to a county in Beauce, called Vendomois; 7½ polls N.E. of Tours. N. lat. 47° 48'. E. long. 1° 8'.

VENDRE le Port, a small sea-port town of France, in the department of the Eastern Pyrenees; 12 miles S.S.E. of Perpignan.

VENDRELL, a town of Spain, in the province of Catalonia; 25 miles W.S.W. of Barcelona.

VENDRESSE, a town of France, in the department of the Ardennes; 9 miles S. of Charleville.

VENDUE, denotes an auction or public sale.

VENDUM, in Ancient Geography, the name of one of the four towns polised by the Scired, in the country that extended itself from the Pannomites to the Adriatic sea. Strabo.

VENEC, a town of Asia, in the interior of Media. Ptolem.

VENED, a people originally of Sarmatia, who occupied the whole coasts of the Venetie gulf, and who passed from thence into Germany with the Slav, where they inhabited the territory abandoned by the Germans. Jornandes says that these people, before that migration, had been vanquished and fubjugated by the barbarians, king of the Goths.

VENEDICI MONTES, mountains of European Sarmatia. Ptolem. 

VENEDICUS STYX, a post of the Baltic sea, in which were found the mouths of the Turusna, Crisna, Rubus, and Curon. Ptolem.

VENEDITOVA, in Geography, a town of Ruffia, in the
the government of Irkutsk, on the Amur; 8 miles E.N.E. of Nertchenkof.

VENEEING, Veneering, or Finessing, a kind of marquetry, or inlaying, by which several thin slices, or leaves of fine wood, of different kinds, are applied and fastened on a ground of some common wood.

There are two kinds of inlaying: the one, which is the more ordinary, goes no farther than the making of compartments of different woods; the other requires much more art, and represents flowers, birds, and the like figures.

The first kind is what we properly call veneering; the latter we have already described under Marquetry.

The wood intended for veneering is first fawed out into slices, or leaves, about a line thick: in order to faw them, the blocks or planks are placed upright, in a kind of fawing-press; the description of which may be seen under the article Press.

These slices are afterwards cut into slips, and fashioned divers ways, according to the design proposed; then the joints being carefully adjusted, and the pieces brought down to their proper thickness, with several planes for the purpose, they are glued down on a ground, or block of dry wood, with good strong English glue.

The pieces thus joined and glued, the work, if small, is put in a press; if large, it is laid on the bench, covered with a board, and pressed down with poles, or pieces of wood; one end of which reaches to the ceiling of the room, and the other bears on the boards.

When the glue is quite dry, they take it out of the press and finish it, first with little planes, then with divers scrapers, some of which resemble rasps, which take off dents, &c. left by the planes.

When sufficiently scraped, the work is polished with the skin of a sea-dog, wax, and a brush and polisher of havel-guts: which is the last operation.

VENELI, or Venelli, in Ancient Geography, a people who inhabited the maritime part of Lynnefe Gaul, and whose capital was the town of Crociatunum. Ptolemy.

VENELLIS. See Vicius & venelli mundandis.

VENENUM Cocry, a term used by many of the ancients for the purple tinge, which the kernels berry, as it is usually called (see Kerme), gave to linen, or other things.

The word Venenum being generally understood to express poison, it has been supposed by many, that the kernels were esteemed poisonous, or that there were two sorts of this drug: the one a harmful medicine, the other poisonous.

But there is no warrant for this in any of the old writers, and the whole feems indeed but a mistake about the sense of the word Venenum, which we find by many passages of the belt authors, signified a skin, as well as a poison.

The ancients called the vestments dyed scarlet with the kernels indifferently, by the names of Flammee or Venenate. Servius tells us, that in certain fared ceremonies, it was necessary that the priest should be clothed in a scarlet robe; and he uses the word Venenate to express it in some places, and Flammee in others.

VENER, one of the many names by which the chemists call mercury.

VENERE, Cape, or Capo di Venere, in Geography, a cape on the coast of Genoa. N. lat. 44° 4'. E. long. 9° 40'.

VENEREA Concia, in Natural History, the name of a very large and elegant genus of shells, more usually called porcellanei. See Porcelain Shell.

VENEREAL, something belonging to Venus.

A venereal poison is one addicted to venery, or venereal pleasures. Venereal medicines are called aphrodisiac, provocatives, &c.
all these ulcers, excepting the venereal, were well known to
Celsus, who describes with much accuracy in his chapter
de obserunum partium viitis all those ulcers on the genitals
which are mentioned by writers since the appearance of
syphilis as varieties of or anomalies in the venereal charac-
ter. Yet it is hardly credible, that almost to this day
there are writers who will conceive that local diseases, dif-
ferent in character in all their stages, in their mode of spread-
ing and healing, and requiring different modes of treatment,
must still be the same; who, while they admit that the ve-
nereal disease is of comparatively recent origin, will still
conform it with appearances most accurately described be-
longer than twelve centuries past.
Mr. Hunter, with that accuracy which distinguishes all
his remarks, began by fixing the character of the disease,
and even shewing, that from the laws of the economy, as
ascertained in all other local diseases, such must be the char-
acter of an ulcer arising from some external cause, and for
the cure of which animal economy had made no provision.
First: In every local irritation, he shewed that a secretion
of some fluid would take place, by which the irritating sub-
ject might be removed. The venereal matter, therefore,
irritating a solid part, induces ulceration, that the part may
rid itself of this irritating cause. But from the nature of
a morbid poison, the effect of that irritation is to pro-
duce a local action, by which a subflance is secreted similar
to that which induced the irritation. In some cafes, as in
small-pox, as soon as this effect is produced it ceases, and
the parts heal as readily as after any other loss of subflance;
but such is not the case with an ulcer from venereal poison.
When this is once set up, its action continues until some
subflance induces a more powerful irritation, and thus super-
fedes the venereal.
Secondly: When the curative process of a fore from any
cause is interrupted, it must spread, or a new action must be
set up. This new action, in common ulcers, is the formation
of thick, or, as they are usually called, callous edges, after
which the ulcer remains stationary. This was well re-
marked by Celsus, who gives this procfs the name of
netolias, describing the thickened lips, and remarking, that
whilst they continue, no applications to the ulcer are of
any use.
Thirdly: The peculiarity which distinguishes the venereal
ulcer from all others is, that the incapacity in the part to
alter the diseased action, produces the same effect as in
parts where there is any other impediment to healing;
namely, the thickened edge and base. But though the
attempt at healing is given up, still the irritation continues
from the constant presence of the virus, and consequently the
ulceration also, in order to rid the part of the cause of such
irritation. Hence we have what is not to be met with in
any other ulcer, namely, a continued ulceration, attended
with or accompanied by a hard edge and base. This is the
only true primary venereal ulcer, and the only ulcer or vitium
not described by Celsus in the chapter before alluded to.
The next question was, in what manner a disease incur-
able of itself was always relieved by mercury. For this a
thousand whimsical causes were assigned, the most common
of which was, that mercury was its antidote. This no one
could doubt, but did such an expression do more than affir-
men a word where we were looking for an action? At length
Mr. Hunter shewed, that this also was perfectly consistent
with what had been before observed; namely, if the venereal
ulcer is the effect of an action arising from the irritation
of a specific subflance, the cure must be effected by the
use of another subflance, the effect of whose irritation
would be greater than the irritation excited by venereal
matter; and the manner in which the disease always yields
to the remedy, confirms the doctrine. For no quantity
of this antidote, as it is called, will produce any effect on
a venereal ulcer, unless an excitement is induced greater
than the venereal: that is, if the chancre is recent, a very
flight mercurial irritation will be sufficient to alter its actio;
if more inveterate, the mercurial irritation must be excited
proportionally higher, and be longer continued.
It may at first seem that we have gained little, inasmuch
as we have now a more severe disease than before. But it
will readily occur, that the parts themselves are capable of
forming mercury, which is the cause of the initial irri-
tation, and which will continue all the action excited by that
irritation is superseded. But the parts are not capable of
forming mercury, by which the second irritation is induced;
we might therefore expect, as actually happens, that when
the use of mercury is discontinued, the action excited by it
would gradually cease also, and the parts be restored to
their original or healthy action.
But other difficulties remain. After the ulceration of
the genitals was perfectly healed, it sometimes happened, at un-
certain periods, that the throat, the skin, or the bones, or
all of them, would shew diseased actions, which, though very
different from those on the genitals, were equally incurable
without the remedy; and which, from their uniformity in so
many subjects, whether during the primary symptoms, or
after they were healed, evidently arose from the same cause.
The ignorance of former practitioners induced them to
suspect that these symptoms of confirmed pox, as they were
called, arose from an insufficient use of the remedy when the
chancre was healed. Yet it was impossible they should
be ignorant, that in many instances in which but compara-
tively little mercury had been used, none of these symp-
toms on distant parts of the body had occurred; and in
others in which the mercury had been used to a very
great extent, the patient had been a second or a third time
affected, though always in different parts, and with local
complaints, different from primary ulcers, yet arising from
a similar cause. Besides, if the disease occurred from the
want of a sufficient use of mercury, how did it happen that
the parts first affected should remain found, and parts not
previously showing any diseased action, should now become
in a state of open ulceration?
To account for this, Mr. Hunter shewed, that though it
is now well ascertained, that mercury will with certainty
cure every form of the venereal disease which we can
detect; it does not follow that it will cure it before such
an action has commenced, as evinces itself by some alteration
in the texture of the part; in other words, that it will super-
fede the venereal action by its higher irritation; but in order
to do this, the venereal action must have commenced. But
it is urged, that doubts thes the venereal action has com-
menced before we can trace it by our senses, and that there-
fore mercury ought in this state to supercede it, and to
prevent its arriving at open ulceration. In answer to that,
Mr. Hunter produces his facts, and shews that when the
action has appeared, it invariably yields to mercury, and
never appears again from the same source of infection in
the same order of parts. He taught us also what is now
universally admitted, that in the skin and throat it is always
curable by a much lighter course of mercury, than was
necessary for curing the primary chancre. Consequently,
if mercury could prevent the venereal action in these second
ary parts, the first course would prove sufficient for that purpose.
But the concurrent testimony of all the best writers goes to
prove, that none of them knew when to expect nor how to
pre-
prevent the appearance of the disease in more distant parts of the body, after it had been cured in the parts first affected; yet all knew how to cure it when it appeared in those distant parts. Boerhavë fancied he had discovered the cause of these difficulties, by comparing the solid texture of the bones with the more yielding condition of the softer parts. Both he and Dr. Swan were sensible how easy it was to cure the disease when it occurred in the skin and throat; but, as honest men, they were forced to confess their incapacity to prevent it, or even after they had cured it in those parts, to prevent its re-appearance in the bones, though in them also they could cure it with equal certainty after the diseased action had commenced.

An accurate attention to these events induced Mr. Hunter to construct a series of experiments, by which he might ascertain the laws which govern the actions excited by this poison, and thus meet all the difficulties of former writers. His first object was to fix the precise character of the chancre, or primary venereal ulcer. Having done this, he watched, by every possible means, those cases in which secondary symptoms occurred, and was convinced that it did not depend on any causes which could with certainty be controlled. This he urged was not different from many other morbid poisons. In inoculating for small-pox, no one can ascertain whether the patient will have pustules beyond the spot inoculated. Had he lived to witness the effect of cow-pox, he would have found a still more striking analogy. It is well known that secondary vessels from cow-pox, that is, a cutaneous eruption usually fourteen days after inoculation, and some few days after the inoculated part has scabbed, will sometimes appear at distant parts of the body; but we have no means of ascertaining under what circumstances these secondary eruptions occur, nor of preventing them, nor of producing them.

The conclusions drawn by Mr. Hunter were, firstly, that from every local action arising from a morbid poison, absorption takes place; secondly, that the absorbed virus circulates with the blood, and is ejected at some of the emunctories, probably the skin; thirdly, that for the most part it passes without contaminating any part in its passage; but that sometimes the throat, or the skin, or the bone, or all three are contaminated. In these cases the parts thus contaminated take the diseased action at certain periods, according to the nature of their structure, and the property of the morbid poison; for it is well known that few, if any, morbid poisons produce their effect till a certain period after their application. The small-pox effluvia are received usually from ten to fourteen days, before the disease shews itself; and the effect then commences on the face several days before the lower extremities exhibit any pustules. Under inoculation, the pustules on distant parts of the body appear at periods later than on the inoculated parts. But though every morbid poison requires a certain period between its application and the effect produced, and though this period is different in different morbid poisons, yet there is a medium in each; and Mr. Hunter ascertained, that the medium for the appearance of the secondary symptoms of syphilis is usually on the skin or throat, six weeks after the effusion of the irritation excited by the mercurial cure which cured the primary disease or chancre: that the appearance on the bones is usually three months after the same event; and that if the patient remains well longer than those periods after the healing of the chancre, he may for the most part consider himself free from any further danger from that source of infection. It must be admitted, that these periods are not always precise; but the same may be said of the small-pox, cow-pox, and other morbid poisons; and when we consider that the medium in one instance is from ten to fourteen days, and in the other from six weeks to three months, it must follow that the variations in each are not greater than their comparative medium would lead us to expect.

From these facts Mr. Hunter improved the practice in this disease so much, that we are often led to believe the disease itself to be milder than heretofore. But the truth is, that we now have some method in directing our treatment, which till his time could hardly be said to be the case. It was known, indeed, that mercury would prove a cure; but neither was the character of the disease accurately ascertained, nor the laws by which it yielded to the remedy, nor to which the secondary symptoms were imputable. Hence mercury was indiscriminately applied to all ulcers on those parts, and many were greatly exasperated by it; and as in the true disease secondary symptoms sometimes occurred, the patient was overwhelmed with a diffusing and deleterious remedy, to prevent what could not be prevented, though it rarely occurred; and when it did occur, was readily cured. But the mode of treatment was far from being the only advantage of Mr. Hunter’s discovery. By ascertaining the laws of the disease, he relieved the practitioner from every embarrassment, when secondary symptoms occurred; and the patient from the perpetual dread of an evil, from which it was supposed neither he nor his offspring were ever secure.

It is not to be wondered if the obscurity of Mr. Hunter’s mode of writing on a subject familiar to himself, but new to every reader, for a long time precluded the world from the benefit they have since derived from his discoveries. For this benefit we are indebted to Dr. Adams, and perhaps to those writers who attempted to controvert the doctrine itself. The latter were very numerous, and, as often happens, few were acquainted with the subject they opposed. Dr. Adams explained the difficulties principally by shewing the errors of his master’s antagonists, and at this time we believe the doctrine is universally admitted by all those who take the trouble to study it. That is, that the antidotal property of mercury consists in the high irritation it excites; that no ulcer on the genitals is phyllitic, unless it continues to spread with a hard edge and base; that it is useless to give mercury in order to prevent the secondary symptoms of the disease, either in the skin or bones, though that remedy will always cure them, if they should appear; and that if these secondary symptoms do not appear before a certain period after the primary ones, there is no reason to apprehend their appearing at all, unless the patient exposes himself again to the same cause. Such is the general doctrine of Mr. Hunter, divested of certain expressions, by which action is with more technical precision distinguished from diffusion. As this language is not necessary we have not introduced it, but refer such of our readers as wish to be acquainted with the precise terms of the discoverer, to the article Lues Venerea.

Dr. Adams has carried one of Mr. Hunter’s opinions somewhat further than the inventor. Mr. Hunter had observed, that after the venereal action of the primary ulcer was superceded by the mercurial irritation, new flakes would sometimes arise, but that it rarely happened that such new flakes would regularly cicatrice or heal. His commentator shewed that this was not peculiar to this disease, but extends to all morbid poisons; that in the small-pox and cow-pox it produces the pitting from the fifth, and indentation from the second; and that in all other morbid poisons where there is a loss of substance, that loss is never restored by the common means

VENEREAL VIRUS.
means of incarnation, called granulations. That if such an attempt is ever made it produces a fungus, called by Mr. Hunter new flesh, which will not heal, and which requires the application of caustic before any attempt at skinning will commence. After this application, Mr. H. remarks the readiness with which the whole will skin over. In this language, the surgical reader will observe the caution with which Mr. Hunter avoids the common terms of granulation and cicatriseation, by substituting for the first new flesh, which will not heal, and for the second, skinning, which rapidly takes place over the whole form, whereas it is well known that cicatriseation is the most tedious part of the healing process in all other ulcers. In this manner the writer of this article conceives we are to reconcile ourselves to that remark on the granulating property of chancre mentioned under the article Lues Venereal; which see. See also Morbid Paffions.

VENERA, or Aphrodithsium, Paradise, in Ancient Geography, a town of Africa, situated on the sea-coast, N.N.W. of Adrumetum. Ptolemy.

VENERIE, or, in Geography, a town of France, in the department of the Po, which took its name from a royal palace built by Emanuel II. Duke of Savoy, for a hunting seat: in this town are carried on manufactures of wool and silk. The palace was magnificent, and the adjacent country abundant with game; 3 miles N.N.W. of Turin.

VENERIS, Ac putas Templum, in Ancient Geography, the name of a temple built by the Trojans in honour of Venus, when they landed on the coast of Epirus, and took possession of the peninsula called Leucas. Dion. Halie.

This temple was on the promontory of Aetium.

VENERIS, Ariones Fanum, a temple of Egyptian, on the promontory Zephyrium, between Canopus and Alexandria. Strabo.

VENERIS, Aures Campus, a territory of Egyptian, in that of Memphis. Dio. Sic.

VENERIS, Infusa, an island of the Arabic gulf, on the coast of Egypt. Pliny.

VENERIS, Lacus, a lake situated, according to Pliny, at Hierapolis in Syria. It was a marsh, near a temple of Juno, according to Lucian.

VENERIS, Mors, a mountain of Spain, S. of the Tagus, and near the country of the Carpetani, according to Appian.

VENERIS, Portus, a port of Gallia Narbonensis, on the Mediterranean sea, between the promontories of the Pyrenees, and N. of Cervaria. This port was famous for a temple of Venus.—Alfo, a port of Italy, in Liguria, on the confines of Etruria, between Segelta and Portus Delphini. Anton. Itin.—Alfo, a port of Egypt, upon the Arabian gulf. It was anciently named "Myos Hornes," or "Muras Statio," also called "Magnus Portus," and afterwards "Veneris Portus," according to Ptolemy, who says that it was near the promontory Drepanum.

VENERIS, Effrum, the stimulus or incentive of venery, is an apellation given, by some anatomists, to the clitoris.

VENERIS, Effrum, is also used, by others, for the transport of love, or the utmost and agreeable enjoyment in copulation.

Some are of opinion, that infectious women are the most apt to communicate the poison when they are thus excited with desire; whereas, with indifference, they may admit the name intercouerce, without giving the infection.

VENERIS, En. See En.

VENEROUE, in Geography, a town of France, in the department of the Upper Garonne; 10 miles S. of Toulouse.

VENERY is used for the act of copulation, or coition, of the two sexes.

It takes its name from Venus, the supposéd deity of the passion of love.

VENERY also denotes the art or exercise of hunting wild beasts; which are also called beafts of venery, and beafts of the forest.

Such are the hare, hart, hind, boar, and wolf. See Beast, Game, and Hunting.

VENATION, in Surgery, the operation of opening a vein, for the purpose of taking away blood for the relief of dyspepsia. See Bleed.

VENESS, in Geography, a cape on the S.E. coast of the island of Eady. N. lat. 59° 1'. W. long. 2° 38'.

VENETA BULLS, a fine red earth used in painting, and called in the colour-shops VENETIAN RED. See RED.

It is improperly denominated a bode, being a genuine species of red ochre. It is of a fine bright, and not very deep red, approaching, in some degree, to the colour of minium, or red-lead, and is moderately heavy, and of an even and smooth texture, yet very friable, and of a dusty surface: it adheres firmly to the tongue, is very smooth, and soft to the touch, easily crumbles to pieces between the fingers, and very much stains the skin in handling. It has a slight alrignant taste, effervesces considerably with aqua balsamica, and in water immediately breaks into a fine powder.

It is dug in Carinthia, and sent from Venice into all parts of the world, being an excellent colour, and very cheap: our colourmen, however, find too many ways of adulterating it. Hill and Da-Coca.

VENETI, in Ancient Geography, a people of Italy, in Venetia, of Celtic origin. According to some historians they were the descendants of a colony of Trojans, who came to embellish themselves here on the ruin of their own country; but Herodotus says that they were an Illyric nation.—Alfo, a people of Gallia Celtica, in Armorica, who inhabited the peninsula above the Nannetti, according to Caesar (De Bel. Gall. lib. iii. e. 8.) who ascribes to them the glory of being the most powerful of all the people who inhabited this coast, and who availed themselves of their shipping, and of the science and practice of navigation. Ptolemy calls their capital Dariorigum. Caesar denominates their territory Venetia, although the Veneti, who inhabited that promontory of Gaul which is now called Britain, excelled, as Caesar says, all the nations on the continent in their knowledge of maritime affairs, and in the number and strength of their ships; yet, when they were preparing to fight a decisive battle against the Romans by sea, they asked and obtained auxiliaries from Britain; which they certainly would not have done, if the Britons could have assisted them only with a few lighter-boats, covered with skins. It is therefore probable, that the people of Britain had ships much of the same form and construction with those of their friends and allies the Veneti, with which they joined their fleet on that occasion. These ships of the Veneti are described by Caesar as very large, lofty, and strong, built entirely of thick planks of oak, and so solid, that the beams of the Roman ships could make no impression upon them. The combined fleets of the Veneti and Britons, in the famous sea-fight off the coast of Armorica, now Britain, against the Romans, consisted of two hundred and twenty of these large and strong ships, which were almost all destroyed in that unfortunate engagement; by which the naval power both of Gaul and Britain was entirely ruined. This great disaster is believed, by some of the best of our antiquaries and historians, to have been the reason...
reason that the Britons never attempted to make any
opposition to Caesar by sea, when the very year after it he in-
vaded their country.

VENETIA, a country of Italy, which commenced E.
of Gaul, near the lake Benacus, and the river Minexus,
which flowed from it. Its boundaries to the N.E. were
not very distinctly ascertained. Its principal rivers, before
the Po, were the Atheitis, the Medocas Major, and the
Plavis. It was very fertile in pasture, and furnished ex-
cellent horses. The people were denominated Veneti or
Heni. Their principal towns were Hadria, Atlette,
Patavium, Verona, Vicentia, Altinum, Tarvisium, &c.
See Venice.

VENETICÆ Insulae, or Veterorum Insulae, compre-
prehended, under this denomination, a great number of islands
situated on the western coast of Gallia Celtica or Lyonsensi.
This general appellation included Bellile, Houat, Hedic,
Groa or Gronias, now Quiberon. These islands occupied
that part of the sea which was opposite to the continent
inhabited by the Veneti; which fee.

VENETO, in Geography, a small island in the Medi-
terranean, near the coast of the Morea. N. lat. 26° 41'.
E. long. 25° 53'.—Alfo, a small island in the Grecian
Archipelago, near the S. coast of the island of Scio.

VENETORI, a town of Walachia; 24 miles W. of
Bucharest.

VENETUS Lacus, in Ancient Geography, the name of
one of those two lakes, which the Rhine formed near its
source in the Alps. The lake now called Boden-fee, or
more commonly the lake of Constance, is called " Brigant-
inus" by Pliny, and " Brigantia" by Ammianus Mar-
cellinus. Strabo assigns to it 330 stadia of length, and 200
of breadth. Its name Boden-fee is derived from a place
called Bodman, situated at the extremity of the lake oppo-
site to which is Bregenz, whence the appellations Brigantia
and Brigantinus.

VENEV, in Geography, a town of Ruffia, in the govern-
ment of Tula, on the Ofer; 40 miles N.N.E. of Tula.
N. lat. 53° 20'. E. long. 36° 14'.

VENEV. See Vene.

VENEZIANO, Antonio, in Biography. Of this early
painter, his birth-place is not exactly known, as he is by one
author supposed to have been a Venetian, and by another
a Florentine. His principal works are at Pisa and Florence,
and in the Ducal palace at Venice. He certainly improved
upon the style of those painters who preceded him, if we ex-
cept Giotto; his manner was less formal, and he is said to
have painted well in fresco, and to have carried the manage-
ment of it to a considerable degree of perfection. He died
in 1384, at the age of 74.

VENEZIANO, Domenico, was born at Venice in 1420,
and was a disciple of Antonio da Meffina, after he had, as
Vafari relates, learned the secret of oil painting from J.
V. Eyck; and to him Meffina communicated his secret.
He painted several pictures at Loretto and Perugia, and
afterwards settled at Florence; where the novelty of his
manner, and the ability with which he executed it, acquired
for him considerable renown. Unfortunately for him, he
formed an intimacy with Andrea Callagno, an eminent
Turcan painter, and taught him the management of oil
colours; when his treacherous friend conceived the hor-
rible design of affailing him, that he might remain
sole poiffor of the secret, and effected his detestable
purpofe in 1476, when Domenico had attained his 56th
year.

VENEZIANU, Antonio, a Sicilian poet, was born in
1543, at Monreale, and acquired great celebrity in science
and polite literature, so that it was fashionable to cultivate
acquaintance with him; and amongst those who fought this
honour was Tafo. In 1578 he was taken, on a voyage to Rome,
by an Algerine corsair, but redeemed; on his re-
turn to his native country, he was imprisoned under a sus-
picion of being the author of some writing against the
vicey of Sicily, and being confined at Palermo, he was
destroyed in the castle by the explosion of a powder-
magazine in August 1593. His writings confifth chiefly of
sonnets and lyric poems in the Sicilian dialect; and some
of his compositions in pure Italian were printed at Palermo in
1572. A large collection of his Sicilian poems exists in

VENEZUÉLA, in Geography, a province of the eastern
part of Terra Firma, or of Spanish America, included within
the jurisdiction of the captain-generalship of Caracas, which
is not only the capital of this province, but the metropolis
of the captain-generalship, the seat of the royal audience and
of the intendancy, while authority extends over the provinces
of Venezuela, Maracaibo, Vinaras, Cumana, Guianas,
and the island of Margareta; extending from N. lat. 12° to
the equator, and from 62° to 75° long. W. from the meridian
of Paris. The name of the province, which is in Spanish a diminu-
itive of Venice, was given to this province on account of some
Indian villages, which the first conquerors found on the
lakes of Maracaibo. Others have erroneously ascribed
the origin of this name to the following circumstance; viz.
that Alphonso Ojeda, having landed here in 1499, caused
some huts to be constructed upon poles, in order to elevate
them above the flagnant water which covered the plain;
but though it is true that Ojeda, in 1499, visited the
eastern shore of Terra Firma, he never thought of erecting
any huts over its flagrant waters. The chief place of the
province of Venezuela has never been nearly on a level
with the water. Caracas is at least sixty toises above the level
of the sea, and has no other water besides that of three brooks
which pass rapidly through it, and of a small river which
bounds it on the south. The first settlement of the Spa-
NIARDS on the borders of the lake of Maracaibo took place
in 1527. The population of Venezuela, including Vinaras,
confined, in 1801, of 500,000 persons; that of the govern-
ment of Maracaibo, of 35,000; of Guianas, 34,000; and of the
isle of Margareta, 14,000: making a total, according to the statement of Depons, of
728,000. The population of Caracas, in 1802, is stated at
from 41,000 to 42,000, consisting of whites, slaves, freed
persons, and very few Indians; the first classes forming nearly
a fourth of the whole, the slaves a third, the Indians a twen-
tieth, and the freed persons the rest. All the whites are either
planters, merchants, military men, priests, monks, or persons
employed in the administration of justice or finance. In
this population, the whites are computed at two-tenths, the
slaves at three, the descendants of freed-men at four, and the
Indians compose the remainder. A late writer, professing
himself a "South American," in his "Outline of the Revolu-
tion in Spanish America," (1817,) says, that in the town of
Caracas alone there were 45,000 inhabitants; and the whole
population of Venezuela, including the several provinces
above enumerated, amounted in 1811 to more than 820,000.
The soil of Venezuela is fertile, and yields, with prodigal
liberality (says Depons), all the productions which are
of value with the West India islands, besides many
others which they do not possess. If a man labour, he must
grow rich; and if he vegetate merely in idleness and sloth,
he has only to flrov, in order to gather from the foil more
than sufficient to satisfy the wants of nature. The cacao of
this province is abundant and excellent. It likewise fur-
ishes
VENEZUELA.

nishes Indian corn, indigo, tobacco, cotton, sugar and coffee. Its vanilla, produced from a creeping plant, which, like the wild vine and ivy, entwines round the trees, is obtained in great plenty. Wild cochineal is also the product of this country, and with due cultivation, it might be made to furnish a variety of woods, barks, and plants for the dyer; and also gums, refining of balsam and medicinal oils; its farfparilla is said to exceed the consumption of the whole of Europe; falfafra and liquorice abound; squills are plentiful; so are likewise florax, cattis, aloes, &c. The horned cattle, affording the article of exportation (hides), the horses, mules, sheep, and deer, are here very numerous. It abounds in all kinds of game, and its rivers and lakes supply plenty of fish.

In order to give a brief account of the revolution that has lately taken place in this province, and in other parts of Spanish America, we shall trace the origin and progres of the Spanish establishments in this part of the world. Terra Firma was discovered by Christopher Columbus in 1498, in his third voyage from Spain to America. After having discovered the gulf of Paria, he coasted along Terra Firma as far west as the Tegito islands, from which point he failed with a fair wind to St. Domingo. Ojeda obtained permission from the Spanish government to pursue the discovery; and having arrived at the territory of Maracapna, in the year 1499, he followed the coast as Cape de la Vela, entering several ports in order to collect more minute information. From Cape de la Vela he failed for St. Domingo, according to Oviedo and Robertson; but according to Charlevoix, he returned before that to Maracapna, a village upon the coast of Cumana, and there had a brig built. Not long after, the account which Columbus had given to the Spanish government attracted to Terra Firma another vessel from Spain, whose real object was commerce, but which concealed its design under a permission from the king to prosecute the discovery of the country. This vessel, commanded by Christopher Guerra, touched on the coast of Paria, at Margarita, Cubagua and Cumanagota, now called Barcelona. In these places, in exchange for trinkets, he obtained a great quantity of pearls, gold, Brazil wood, &c. of which he formed a very rich cargo. Guerra pursued his course along the coast to the westward, and landed only at Coro, where he found, to his great astonishment, some Indians, as much disposed to take away from him whatever he had got, as those on the eastern coast had been to give them to him. He had too much to lose to run the risk of a war, by which neither glory nor emolument was to be acquired. He, therefore, wisely took the resolution of returning to Spain, in order to place his riches out of the reach of danger.

The report of his arrival and fortune spread over the whole kingdom, and immediately from every part expeditions were fitted out for Terra Firma. At the same time, Charles V. gave permission to make slaves of the Indians who should impede or embarrass the conquest; a grant so much the more deplorable to humanity, as it strongly excited the avarice of those in whose hands money chiefly held the place of every other consideration. It is easy to imagine, that upon those coasts, where tillage had nothing to fear either from the vigilance of the magistrate, or the war of pirates, there must have been established a notorious commerce, which had no other object than infeatable avarice, no other result but rapacity, tyranny, and ferocity. The crimes committed by that swarm of robbers, who contended with one another for superiority in feats of plunder, were so great and so numerous, that the cries of the victims reached the audience of St. Domingo, who are entitled to our applause for having immediately taken measures to make it appear to the inhabitants of the new world, whom they wished to lead rather than to drive into obedience, that the enormities of that feast of the Spanish nation were not properly chargeable on the nation itself. The audience sent thither, in quality of commissary and governor, a man of very great merit, named John Ampues, who arrived on the Coriana coast in 1527, with sixty men. His mildness, affability, and knowledge soon gained the confidence of the cacique of the Coriana nation; and a solemn treaty confirmed the union and alliance which they formed, and the cacique took the oath of allegiance and vassalage to the Spanish monarch. On the 27th of July, 1527, Ampues laid the foundation of Coro. Thus the province of Venezuela had the pleasing prospect of arriving, without commotion, to a degree of prosperity which would crown the happiness of its inhabitants. However, the commercial house of the Welfers, established at Augsburg, being considerably in advance to Charles V., and who, with the treaty made by them, patroons of the natives, the king refunded, and the emperor appointed governor the licentiate John Pérez de Tobón, who, according to Oviedo, had likewise the title of captain-general. This new reformation produced a favourable change in the system and mode of conquest; and it was an established point, that instead of committing devastation, the conquerors should form settlements; and instead of plundering, respect property. Laws, which had been enacted in 1526, 1540, 1542, 1550, and 1552, were put into execution. These laws declare the Indians to be free, not even excepting those who should be taken prisoners in the act of bearing arms. As soon as an Indian nation was subjected to the Spaniards, a convenient fite was chosen on which to build a town, for the better security of the conquest. One hundred Spaniards formed the population of the new city, to which a cabildo was attached. They afterwards divided the city in portions among the new inhabitants, according to their rank and merit; and after having made an enumeration of the Indians, they shared them among the Spaniards, who thus acquired over them a right, not of property, but of superintendence. This is what is called "repartimientos de Indios," the dividing of the Indians. This measure was followed by more fixed regulations, under the name of "encomiendas;" the effect of which was to place under the immediate superintendence and authority of a Spaniard, exemplary for his morals, the Indians who lived within a limited extent of ground, corresponding to that of the communes in France. In return for these attentions, the Indians were to pay the commisioned superintendents of the encomiendas, who were called encomenderos, a yearly tribute in labour, fruits, or money. When this tribute was once paid, the Indians were exempted from every other personal service. It appears that, according to the voluminous and special contract entered into between the kings of Spain and the discoverers, conquerors, and settlers in Spanish America, politically divided by the Spanish government, and comprehending the viceroyalties of New Spain or Mexico, Santa Fé de Bogota or New Granada, Peru, Buenos Ayres, or the province of Rio de la Plata, and the captain-generalships of Guatemala, Venezuela, and Chili; these last were to remain lords of the country, on the hands of feudal vassalage, under the names of "encomenderos." Such, however, was the inhuman conduct of the first of these towards the natives, that Charles V. and his successors were under the necessity of
of gradually abolishing many of their privileges, and the

"encomiendas" fell at length, in most of the provinces, to
the crown; and certain inferior privileges were then
granted to the settlers, in lieu of those originally possesed,
with the titles of marquis, count, &c. Spanish America
was from that time considered as a kingdom, independent in
itself, yet united to Spain, as being both under the govern-
ment of one king. The incorporation of this country to
the crown of Castile was decreed by Charles V. in Barcelona,
September 14, 1519, and confirmed by Donna Juana, Phi-
lip II. and Charles II. Accordingly, in the opening of the
royal decree published in the year 1524, for the nomination
of a supreme council for the Indies, the term kingdom is
expressly used, and its use admits, that the inhabitants had a
natural right to hold the appointments of profit and honour
in the country. The energetic remonstrances of Montefino,
Cordova, Las Casas, and others, to the court of Spain,
against the arbitrary measures of the conquerors and settlers,
gave rise to the establishment of the Council of the Indies.
(See Council of the Indies.) Whilist the legislative power of
the kingdom of the Indies rested in this council, and the
king, the executive power belonged to the viceroys and cap-
tain-general. The viceroys were also invested with royal
powers, that is, they were authorized by a special commision
with plenitude of power in extraordinary and delicate
emergencies.

From the most exact calculations, it is concluded that the
continental part of Spanish America contains thirteen millions
of inhabitants; part of which population is employed in
agriculture, particularly in Venezuela, Guatemala, Gua-
ayquil, Chili, Carthagena, &c.; and many in the care of
cattle, especially in the provinces of Rio de la Plata and part
of Venezuela; while the inhabitants of several provinces of
Mexico, Peru, and New Grenada, are almost wholly em-
ployed in working the mines. The Indians and Negroes
have retained, in a great measure, their primitive customs;
the Creoles have received theirs from the Spaniards.
The Catholic religion being that of Spanish America, the church
and government are ecclesiastical dignities are the same as in the
mother-country. The inquisition was also established in the
new continent; all access to the Spanish settlements was not
merely closed against foreigners, but even the inhabitants of
the different provinces were prohibited from intercourse with
one another. Commerce was exclusively carried on with
Spain, and was almost entirely in the hands of Spaniards;
about the end of the last century, however, some special
privileges were obtained from the viceroys and captains-general
to trade with the Antilles, when communication with the
mother-country was very difficult; and in 1797 the court of
Madrid was obliged to allow some of the ports of Terra Firma
to be opened for the advantage of commerce. Urged by
similar motives, Ciferos, the viceroy of the provinces of Rio
de la Plata in 1809, opened the ports of Buenos Ayres, that
a free trade might be carried on with the nations in alliance
with Spain.

The court of Madrid long maintained its power in the new
continent, by a small number of Spanish troops, as the
Creoles were cordially attached to the mother-country, and
the Indians unable to free themselves; but about the middle
of the last century, a plan of conspiracy was formed in Ca-
racas, with a view of destroying the company of Guipu-
cos, to which the privilege had been granted of exclusively
trading with Venezuela. The design was discovered, and
the head of the conspiracy condemned to death. (See Car-
racas and Guipuicos.) The oppressions of the repartimien-
tos, and other grievances, gave rise also to the insur-
reccion which took place in Peru in 1780. By the syflem of
the repartimientos, the Indians were obliged to receive their
necessary supplies of goods, hardware, and mules from the
corregidores (officers named by the king), at the prices they
fixed, and on the credit they thought proper to give. In
1781, some reforms and additional taxes were introduced
in New Grenada, in the province of Socorro, one of the most
populous of the viceroyalty; but the province openly
declared against these changes, and having assembled near
17,000 men, marched against Santa Fe de Bogota, ex-
claiming, "Long live the king, but death to our bad

Some few Creoles and Spaniards, well acquainted with the
principles laid down by the French politicians in the early
period of the French revolution, and with those of the
writers who preceded that period, formed a plan for revolu-
tion in Caracas in 1797. They treated the Spanish govern-
ment with contempt, and trusted to the protection of the
English, in consequence of Mr. Pitt's well-known plan of
giving independence to Terra Firma. The conspiracy was
discovered, and theensonable leaders made their escape; but
one of them was afterwards apprehended and hanged. Sir
Thomas Picton, governor of Trinidad, issued at this time a pro-
claimation, in which he says, towards encouraging the
inhabitants (of the continent near to Trinidad) to refil
the oppressive authority of their government; "I have little
more to say, than that they may be certain, that whenever
they are in that disposition, they may receive all the
favour to be expected from His Britannic Majesty, be it
with forces, or with arms and ammunition to any extent;
with the assurance, that the views of His Britannic Majesty
shall go no further than to secure to them their independence,
without pretending to any sovereignty over their country,
nor even to interfere in the privileges of the people, nor in
their political, civil, or religious rights." To afflit the revo-
olutionary party in Spanish America, the English cabinet is
said to have paid the expedition of Miranda to Venezuela in
1806, and to have sent that of Whitelocke to Buenos Ayres
in 1807, both of which failed. It is certain that the inhab-
abitants of Spanish America have been long discontented, and
that they have complained of various grievances to the court of
Madrid. This court, however, knew how to answer petitions
without redressing grievances. But Napoleon Bonaparte,
when he became in fact master of the Peninsula, and possessor
of the wealth of America by the influence he had in this
court, having invaded the kingdom and seized the royal
family of Spain, loofened those bonds which united the new
to the old world, and gave rise to a revolution which, from
the wide extent of the country in which it is seated, its char-
acter, and its consequences, is unparalleled in the annals of
history. When Bonaparte had not only invaded the king-
dom, but feigned king Ferdinand, and assemblies under the
denomination of "juntas" were established in various pro-
vinces of Spain, each assuming in its respective district the
supreme authority, the Spanish Americans were perplexed
and dubious as to the conduct which they ought to pursue.
The moment for freedom seemed at length to preferit itself,
after they had been wearied and exhausted by a series of
f uguffings for three centuries. However, Spanish America
was still attached to the mother-country; and when it was
announced at Caracas, in July 1808, that Joseph Bonaparte
had taken possession of the Spanish throne, the city was
immediately in arms; 10,000 of its inhabitants surrounded the
residence of the captain-general, and demanded the pro-
clamation of Ferdinand VII. as their king; which he pro-
mised to do next day. But such was their ardour, that they
proclaimed him that evening by heralds in form, throughout
the city, and placed his portrait, illuminated, in the gallery
of
of the town-house. Some months after this wonderful display of attachment to the mother-country and its sovereign, many respectable families of Caraccas concurred in presenting a petition to the captain-general, Cafa, for permission to elect a junta similar to those in Spain. The petitioners indeed were arrested; but after a confinement of very few days they were released. About the end of July, 1808, Liniers, viceroy of Buenos Ayres, received intelligence of the events that had occurred in the Peninsula; and in a proclamation addressed to the people, he exhorted them, in the name of Bonaparte, to remain quiet. Xavier Elio, the governor of Monte-Video, accused him of dilatoriness, and thus separated the country under his command from its allegiance to him, by forming a junta resembling those of Spain.

The news of the general insurrection in Spain reached Mexico on the 29th of July, 1808; and a junta was immediately established. La Paz, which was the capital of one of the districts under the dominion of the audiencia of Charcas, considering Spain too feeble to free herself from the power of the French, wished to provide for its own security; and, in the beginning of the year 1809, formed a government for itself, composed of many respectable persons, which was styled "junta intitulica." The viceroy of Buenos Ayres sent an army to oppose this motion; and Goyeneche, marching, by order of the viceroy of Peru, against La Paz, who succeeding, ordered numbers of the patriots to be ignominiously and cruelly executed. Quito, nevertheless, capital of the audience bearing its name, established a separate government, August 15th, 1809. But the viceroy of Santa Fe de Bogota hastened to destroy the junta of Quito by force of arms; and Abacal, the viceroy of Peru, did the same. The defenders of the junta were obliged to yield to superiority of force, receiving a promise from the Spanish president of Quito, that past events should be forgotten. But regardless of this promise, many patriots, amounting to more than 300, were murdered in cold blood. In 1810, the junta of Caraccas commemorated the fate of these victims with funeral honours equally magnificent and solemn. Upon the dispersion of the central junta in Spain, and an illegal election of a regency, the inhabitants of Caraccas resolved to try to obtain by force what reasonable representation had failed to gain for them. The municipal body, in conjunction with many persons named by the voice of the people, assumed the reins of government, and the appellation of "junta suprema." The acts of the junta were published in the name of king Ferdinand VII.

The establishment of the junta of Buenos Ayres was effected with more tranquillity than that of Caraccas. A junta was formed at Chili in September; and disaffection, occasioned in Mexico by violent measures, produced an insurrection, September 16th, 1810, in the town of Dolores, near Guanaxuto; which insurrection soon extended through the whole country.

When the council of regency received intelligence of the proceedings at Caraccas, by which the inhabitants declared themselves independent of the mother-country, and determined upon forming a governing junta to exercise this sup­posed independent authority, it resolved to adopt vigorous measures for preventing the progress of this evil; and, for this purpose, consulted the council of Spain and the Indies. Accordingly the regency declared the province of Caraccas in a state of rigorous blockade. The measures now adopted evinced the prevalent spirit that actuated the Spanish Americans, though the different provinces were not acting in concert with each other. War seemed to be the will of the merchants of Cadiz, and of the cortes that had been assembled by the regency; and various methods were used to excite and encourage it. Its long continuance, and the savage manner in which it is prosecuted, evince the irreconcilable animosity of the contending parties. "The Spaniards fight for reconquering their once proselized territories, and the Spanish Americans to obtain independence: the first are cruel in the hour of triumph, and with adversity their en­mity increases; the latter are courageous in attack, and, when defeated, ready to place confidence in their leaders, and to rally under their banners. The first possess great military skill; the latter, superiority of number. Both have uniformly shewn a firmness and decision in action suited to the high objects they have in view, and to the great obstacles they have to overcome. In these contests, the blood of thousands has already inundated an extent of country of more than 1600 leagues, which comprise the Spanish settlements in the new continent; and as if the mortality in the field of battle were not sufficient, numbers are daily murdered in cold blood."—"The Spanish chiefs and rulers, it is said, gave the first example of violating capi­tulations, of shooting prisoners, and of refusing all means of accommodation, in the cruel war carried on in the new continent, by the authority of the cortes of Spain, and by Ferdinand VII. The old Spaniards of either world must be altogether unable to find an excuse, or even a palliation, for their want of humanity, and breaches of faith, since the beginning of the revolution. The cruelty of the Spanish chiefs, and tokens of approbation on the part of the regency and cortes, have exasperated the newly-formed governments in Spanish America, and given strength to their decisions. At first the revolutionary spirit was confined to very few persons, but it soon spread through the whole continent. This sufficiently appears in the spirit and language of the act of independence published by the congress of Caraccas, July the 5th, 1811. Similar declarations to those of the congress of Venezuela were made in Mexico, and in Carthagena, Socorro, Tunja, Pamplona, Antioquia, and the other provinces, which composed the confederation of New Grenada, and more lately by the congress of Buenos Ayres." When king Ferdinand, in his decree of the 4th of June, 1814, announced to the South Americans his return to his country, he ordered that they should lay down their arms; and this order was enforced by an army of 10,000 men, equipped at Cadiz, and placed under the command of Morillo. This army appeared on the coast of Venezuela in April, 1815. All hopes of reconciliation were now abandoned, and a revolt in Spanish America against Ferdinand VII. may be dated from this period. From Camapo general Morillo proceeded to Margareta, and from thence to Caraccas; and in the following August he besieged Carthagena. Although difficulties had occurred between Bolivar and Cabello, both commanders of the South American forces, and left them the means of defence which Carthagena possessed, the inhabitants, nevertheless, supported by nearly 2000 regular troops, prepared for a vigorous resistance. But provisions failed, and more than 5000 persons died of famine. On the 5th of December, 1815, the governor and garrison of Carthagena evacuated the place, and on the following morning the king's troops entered. General Morillo, thus possessed of Carthagena, was enabled to conquer New Grenada. He entered Santa Fe de Bogota in June, 1816, and remained there till November. More than 600 persons of those who composed the congress and provincial governments, as well as the chiefs of the independent army, were shot, hanged, or exiled; and the prisons were full of others waiting their fate.

The first decree of the junta suprema of Caraccas, formed
April 19th, 1816, contained orders to arrest the captain-general, and the members of the audiencia, who were sent to the United States of America: it was decreed that the alacabals, or duty on selling any commodity, should be aboli-
hished, the tribute paid by the Indians, and the slave-trade; that freedom of commerce, agriculture, &c. should be estab-
lished; and that these political changes should be made public, and communicated to the English government. Juntas were formed for similar purposes in different prov-
ces. The regency of Spain was incensed, and it declared all the ports attached to the new government to be in a state of blockade; and orders were given for reducing
Venezuela to its former subjection. When these orders proved inexpedient, fates and emigrations of every description
were sent to all parts of Venezuela, for the purpose of
effecting a counter-revolution. General Miranda reached
the shores of Caraccas in the end of 1810, notwithstanding
the instructions given by the junta supreme for opposing the
return of the general to his native country, with a view of
evincing the moderate plan of conduct which the junta had
adopted towards Spain. A general congress met, and the
plan of a confederation, as the best fort of government for
Venezuela, was formed and adopted. Miranda, however,
opposed it, and his conduct gave offence. In April, 1811,
the congress nominated three persons, who were to consti-
tute the executive power, which was very limited. Al-
though several persons were secretly devious of reunion with
the mother-country, they durst not avow it, so earnest
were the inhabitants of Caraccas for independence. The
anniversary of the revolution, on the 19th of April, was
kept with great rejoicings. A molt alarming conspiracy
was just ready to break out in June, 1811, but it was dis-
covered and defeated. In the midst of the prosperity of
Venezuela, it was visited, March 26th, 1812, by a most
tremendous earthquake, which destroyed nearly 20,000 per-
sons. The towns of Caraccas, La Guayra, May-
queta, Merida, and Sanfelipe, were totally demolished; and
Barquisimento, Valencia, La Victoria, and others, suffered
very considerably. At this crisis, general Miranda had the
command of the army, and general Monteverde commanded
the royalists. Caraccas at length fell under the power of
the royalists; the republican army was disband ed; and Mi-
manda, with many others, proceeded to La Guayra, intend-
ing there to embark for Carthagena. But Miranda was
betrayed, and he, with nearly 1000 patriots, were thrown
down into dungeons at La Guayra and Puerto Cabello. In con-
sequence of this disfaster, Cuchana and Barcelona acknowl-
dged the authority of Monteverde; and other similar
events occurring, the Spanish government renounced its au-
thority in Venezuela. Vengeance filled the mind of Mont-
everde. The Spaniards thought, by destroying the in-
habiting of Venezuela, the first province which had shaken
off their yoke, to punish in them the insurrection of the
whole southern continent. Every royalist became a public
accuser; every prisoner was filled with patriots; and al-
most the whole population were under confinement. This con-
duct of the royalists, instead of conciliating, excited the
hatred of the inhabitants; and the courage of those who
were attacked to the cause of independence revived. The
province of Cumana first opposed the oppression of Monte-
verde; and here he was twice defeated. Don Simon Bo-
lovak, one of the most distinguished natives of Caraccas,
obtained from the congress of New Grenada near 600 men;
and with these he felt confident that he should be able to
conquer the enemies of his country. Bolivar, after a variety
of prosperous adventures, was rapidly advancing towards
Caraccas, where the inhabitants waited for him, as their
deliverer. A junta was assembled, and it was proposed to
make proposals of capitulation to Bolivar. The general
accepted the offered treaty, and granted leave to any perfon,
who was defirous of it, to emigrate from Venezuela, and to
withdraw his property. The articles of the treaty, though
they were extremely liberal, were disapproved by the captain-
general Monteverde, because it was derogatory to the dig-
nity of the Spanish nation to treat with insurgents. Bolivar
made his triumphant entry into the city of Caraccas, amidst
the congratulations of the inhabitants, on the 4th of August,
1813. The dungeons of La Guayra were thrown open,
and those who had survived a year's confinement were re-
ferred to their country and friends; while the people,
shouting with joy, bleffed their deliverer, at the fight of
every individual who rushed from the prisons. In the midst
of this popular ferment, none of the Spaniards were in-
sulted. The provinces which formed the republic of Vene-
zuela were again in the power of the patriots; but Monte-
verde obstinately perfisted in refusing to treat with Bolivar.
In the mean while, Monteverde received from Spain a re-
forcement of about 1200 Spanish troops; and thinking
himself warranted to act offenfive, he attacked the repub-
licans, but was completely defeated. Almost all the Spaniards were killed or taken prisoners, and Monteverde
himself was severely wounded. After this defeat, Bolivar
laid siege to Puerto Cabello both by sea and land. But the
royalists retiring into the fortrefs, determined not to sur-
render. Bolivar, in invading Venezuela under the protec-
tion of the congress of New Grenada, had received orders
to reinfantine the republican congress; but this he did not
think it advisable to do. Bolivar, however, having given
an account of his intentions and operations, in the invasion
of Venezuela, to an assembly that had been convened of
persons of all ranks, resigned the supreme authority which
he held. But the governor of Caraccas proposed, and his
propofal was agreed to, that Bolivar, denominated the
"Libertador de Venezuela," should be invested with dicta-
torial authority, till the reunion of the provinces of Vene-
zuela to those of New Grenada, under the fame representa-
tive form of government. The Spaniards, not being able
to subdue Venezuela, determined to destroy it. Accord-
ingly the slaves were to be raifed in rebellion against their
masters. The number of slaves in Venezuela amounted to
70,000; and one of the most formidable emiJJarities for this
purpose was Boves, over whom Bolivar obtained a signal
victory at La Vitoria. After gaining several other con-
derable advantages over the royalists, Bolivar considered
himself as secure in the possession of Venezuela; and turned
his attention to Coro and Los Llanos, whither the enemy
had fled. But as the three divisions of the republican army
were separated many leagues from each other, Bolivar was
attacked by Boves on a plain called La Puerta nearly
50 leagues from Caraccas, and, after many hours fighting,
compelled to abandon the field to Boves. Other difafter
also occurred, and from this time confusion reigned among
the patriots, and there was no longer any army for the pro-
tection of Caraccas. Suets no longer attended Bolivar;
his former good fortune had forfaken him; and even the
commander of his flotilla, which protected the coast, refused
to obey his orders. Defparing of the independence of his
country, he and a few of his chofen officers, who were
willing to partake his ill fortune, embarked for Carthagena.
From Carthagena he proceeded to the town of Tunja,
where the congress of New Grenada was sitting; and he
was commissioned by the congress to compel by force the
city of Santa Fé de Bogota to acknowledge its authority.
In this he succeeded; after which he was sent with 3000
men
men to reduce to allegiance the province of Santa Marta. Carthagena was to contribute troops and guns; but it was prevailed upon to refuse the demanded supply, under pretext of Bolivar's ambitious views, and his faginary career in Venezuela. Bolivar marched against Carthagena; but intelligence having been received of the expedition from Spain having reached this city, Bolivar gave up his plan, quit the army, and his troops united to those of Carthagena to defend that city. The royalists entered Carthagena about four months after the siege had begun; but in the mean while, Bolivar, who had gone to Jamaica, proposed to affix Carthagena by landing an expedition on her shores. The capture of Carthagena prevented the execution of his plan, and he again turned his attention to Venezuela. Stimulated by the hopes of once flattering prospects, Bolivar planned an expedition for afflicting the efforts of the patriots of Margarreta; and joining Borion, an affluent native of Curacao, disembarked the emigrants from Venezuela, and part of the garrison which had evacuated Carthagena. Borion was appointed commander of the maritime forces, which were to be employed on this occasion. Sailing from Aux Cayes at the end of March, 1816, they landed in the beginning of May at La Margarita. From Margarita Bolivar failed for Carapabano, about five leagues west of the town of Cumana, of which he dispossessed the royalists; and having armed many of the corps of guerillas, who had advanced to join him, they failed for Ocumara. When he landed at Ocumara, he issued a proclamation, giving liberty to the slaves. This proclamation, dated July 6th, 1816, does honour to his judgment and feelings. "Your tyrants," says he, "shall be deposed and expelled, and you shall be restored to your rights, your country, and peace."—"No Spaniard shall be put to death, unless in battle. No American shall suffer the least injury for having joined the king's party, or for having committed acts of hostility against his fellow-citizens."—"That unhappy portion of our brethren, which has groaned under the miseries of slavery, is now set free. Nature, justice, and policy, demand the emancipation of the slaves; henceforward there shall be only one chiefs of people in Venezuela—all shall be citizens." Bolivar, who after the defeat at Ocumara had returned to Aux Cayes, brought new reinforcements to Margarita, where he landed in December, 1816. There he published a proclamation, convoking the representatives of Venezuela to a general congress; and went afterwards to Barcelona, where he organized a provisional government. In this place he repulsed the royalists under Real and Morales, in February or March, with great loss. Although the patriots lost the town of Barcelona on the 7th of April this year (1817), and the royalist forces in Venezuela received an addition of 1600 men from Spain in May last, it is now (Augufi) reported, that Bolivar has succeeded in completely establishing the republic of Venezuela. Travels in South America, by Depons, in 2 vols. 1807. Outline of the Revolution in Spanish America, by a South American, 1817.

VENEZUELA. See CORO.

VENGA-MIBOOR, a town of Hindooftan, in Myjore; 17 miles S.E. of Errood.

VENGA-PALEAM, a town of Hindooftan, in Myjore; 11 miles N.W. of Darzapour.

VENGO-LINA, in Ornithology, an African bird, which seems not to have been described by any of the ornithologists. According to the Hon. Daines Barrington's account, it is of the jucb tribe, and about the same size with our abbrev- daine, or flickin; the colours are grey and white, and the cock hath a bright yellow spot upon the rump; it is a very familiar bird, and sings better than any of those which are not European, except the American mocking-bird. Phil. Trans. vol. lxi. part ii. p. 254.

VENHYUSEN, in Geography, a town of Holland; 4 miles S.W. of Enckhuysen.

VENIA, among our Ancient Writers, denotes a kneeling, or low prostration, to the ground; used by penitents. See GENUFLEXION.

Wallingham, p. 156. "Rege interim prostrato in longa vena. Per venias, centum verrunt barbis pavimentum.""
of monks, twenty-six nunnaries, seventeen rich hospitalls, eighteen oratories, forty religious fraternities with their chapels, and fifty-three squares. The buildings, indeed, are all of stone; but the greater part mean, without beauty or elegance. St. Mark's square, it is true, is very fine, and so are the several stately marble palaces that border upon the grand canal, though most of them are of Gothic architecture. In the churches and convents, the most admirable parts are the paintings; and indeed Venice, highly renowned for fine paintings, is said, in this very respect, to have surpassed even Rome itself. Venice, from the fertility of its neighbourhood, and the facility of carriage, enjoys a constant plenty. The spring-water being very indifferent, almost every house has a cistern, into which the rain-water is conveyed from the roof, and clarified by being filtered through laid earth. Water is always brought from the Brenta, and preferred in cisterns. Among the diversions of Venice, the carnival is accounted the chief; it usually begins the second day of Christmas, and continues till Shrove-Tuesday; confifting chiefly of masquerades and ridottos: St. Mark's place is the general rendezvous. Other diversions are plays and operas. The trade in cloth, especially scarlet, silk goods, and looking-glasses, is still very considerable. Here also gold and silver fluffs are manufactured; which, although not so beautiful as those of France, have a very good sale in the Levant. The brocatellas, a kind of stuff like brocade, made of coarse silk, are much used for carpets. Venice is divided into six parts, called Selletiere di Selletiera. S. Marco contains the piazzetta of S. Marco, with the adjacent buildings. This square, the pride of the city, forms a right angle, the shortest side of which, two hundred and forty paces long, and seventy-five broad, reaches along the ducal palace. The ducal palace, towards the water-side and St. Mark's place, is entirely Gothic; but on the side of the small canal, and in the court, of modern architecture, and most finely wrought. It is arrived from the river Brenta, but also for the meeting of the council. The finest ornaments of the council-chamber and other apartments, are the paintings of ancient masters. In one side of the palace, towards the canal, Rio di palazzo, were dark prions, strongly secured with iron grates. The lower gallery, or arched walk, on the side of St. Mark's square, together with the opposite side, is called Broglio. Here, at a certain hour of the day, the nobles took their walks, and at this time the Venetian of an inferior rank must be seen on it; though a foreigner, as supposed unaccounted with the custom, is not desired to quit the place. Between these two buildings and the piazza were two pillars of Oriental granite, on one of which stood St. Mark's lion in brass, and on the other a marble statue of St. Theodore. Between these is the place for the public execution of malefactors, through which no nobleman is ever seen to pass. A gallery, completely rigged and armed, lay close to the Broglio, for the defence of the ducal palace on any sudden emergency. Contiguous to the north part of the doge's palace is St. Mark's church, also filled with the most stately paintings; but the church is entirely Gothic. The best part of it consists of the Mosaic paintings, and the four brass horseteers, formerly gilt, standing over the great door, and said to have been brought here from Constantiinople. In the church treasury is kept a very famous manuscript of the gospel of St. Mark, pretended to be autographical; but the dampness of the place where it lies has spoiled it to such a degree, that no part of it is any longer legible, and it is not so much as certain whether it be written in Latin or Greek. In the Selletiera di Caletello is the arsenal or dock, two Italian miles and a half in circuit, walled and moated in, with twelve towers along its walls; and within the inclosure a great variety of buildings, in which every thing requisite for a land or sea armament is kept in readiness; with shops, storehouses, and basons and slips for ship-building, &c. Within it lie the men of war, frigates, galleys, and other vessels, with the Bucentauro, which is also laid up here. In the Selletiera di Canale Regio is the theatre, and in this quarter the Jews live, to the amount of fifteen hundred, who must wear a flap of red cloth in their hats, by way of distinction from Christians. Selletiera di S. Pavolo contains the exchange, the bank, &c. On the invasion of Italy, in the fifth century, by the Huns, under their king Attila, and the general defolation that every where appeared, great numbers of the people who lived near the Adriatic took shelter in those islands where, in 1271, the city of Venice; and which islands, about the year 421, particularly Rialto, had, in some measure, been built upon by the Paduans, for the advantage of commerce. (See Venetia.) Here having settled their small places or fites, they were at first governed by consuls; afterwards by tribunes; and formed a kind of republic, the council of which was represtented by the persons of these magistrateaters. These islands became still better inhabited on the succeeding incursions of the Goths and Lombard into Italy; multitudes from Rome and other large cities repairing thither, so that this state became soon able to make some head against these bold invaders. At length the chiefs of the islands and the Longobardi came to an agreement, by which the former were to remain unmolested. This was the commencement of the city and state of Venice. About the beginning of the eighth, or end of the seventh century, the former government of these islands was abolished, and an unlimited power conferred on Paulicuo Aneafeto, with the title of duke. Under this sovereignty the state greatly increased, till the people, jolly becoming weary of the ills of domestic defpotism, in the year 1171, another duke, but curtailed his power, by asgining him a council of 240 persons, composed of commons as well as nobles. Duke Ziani sided with pope Alexander III. against the emperor Frederick, and obtained over him such a signall victory at sea, that the pope presented him with a ring, which he was to drop into the Adriatic, as a sign of his marriage with, and perpetual sovereignty over it. The Venetians, who had already extended their dominion into Istria, Dalmatia, Syria, Lombardy, and other places, made a very considerable acquisition in the beginning of the thirteenth century, by poiffessing themselves of the principal islands in the Archipelago and Mediterranean, particularly that of Candia. From this time they alone carried on, at an immense profit, the trade for East India goods, which they imported from Alexandria, in Egypt, to which place they were brought across the Red sea, and by the way of Suez. Under duke Marino Morosino was introduced the form of electing the doge; and it was at this juncture that jealousy and envy fomented the war with Genoa, which, after continuing 150 years, was at last put an end to by treaty, in 1281. During this war, duke Peter Grandonigo, in the year 1296, ordained that the nobility alone should be capable of sitting in the grand council. Thus the government became aristocratical. In the 14th century, the Venetians extended their possession in Lombardy; and, in 1473, the last king of Cyprus appointed the flate of Venice his heir. Towards the end of the 15th century, the Venetian commerce, and consequently power, began to decline, when the Portuguese discovered a route by sea to the East Indies, which opened the trade to all nations. In the 16th century, the pope, the emperor, France, and Spain, joining in a league against them, they were
were disembaffled of all their towns and places in the kingdom of Naples, the ecclesiastical state, and the Milanese. They received another severe blow from the Turks, who drove them out of the island of Cyprus. In the 17th century a sharp contest arose between the state, the clergy, and the pope, in which, however, they had the advantage. They were also long engaged in troublesome wars with the Turks, losing Candia, and gaining part of Dalmatia, and all Morea; but the greater part of these had been lost in preceding wars. Thus the republic of Venice continued upwards of 1300 years, amidst many foreign wars and intestine commotions. Its grandeur was chiefly owing to trade and liberty; and since the decline of the former, its strength and consequence must have suffered a considerable diminution. The power was lodged in the hands of the nobility, said to be near 2000, including those whom public employments in the provinces obliged to reside out of Venice.

On the birth of a nobleman's son, his name was entered in the golden book, otherwise he forfeited his nobility. Every noble was, indeed, a member of the senate; and on this account it was a received maxim, that they all were equal in dignity. But the difference, notwithstanding, between the interest and authority of families, was very considerable. To the first class belonged the ancient houses, whose ancestors had been to the duke, and who, from thence, were called "Le Cate Elettorali" and on them, preferably of all others, were conferred the higher offices. Next follow eight houses, almost as ancient. The second class had its origin from the Serar del Consiglio; duke Brandongio having passed a law that the council should perpetually confide of the families which then composed it, and some others which he enobled. This produced a second class of nobility, who, accordingly, were then registered in the golden book. It consisted of upwards of eighty families, and some of great wealth and reputation. With these were also included families raised to nobility after the Genoese war, on account of their large contributions towards carrying it on with vigour. The third and last class was composed of the Cittadini, or citizens, whose nobility was purchased for 100,000 Venetian ducats, a reissue of the republic for raising money in necessitous times. Crowned heads, German and other princes, have not thought it any degradation to be made nobles of Venice. The habit of the nobility, whill at Venice, was a black furred gown, reaching to their heels, with a belt about three inches broad, and plated with silver. Instead of hats they had long caps. The head of the republic was the doge, or duke, who, on the demise of the former, was chosen in a peculiar manner, by forty-one nobles, selected for this purpose by a process which it is needless to describe. These forty-one electors were confirmed by the grand council; and, being shut up in a chamber of the ducal palace, there remained till they had chosen a new doge. To the duke and legal election of a doge, it was required, that out of the forty-one he should have twenty-nine votes. His election was followed by a kind of coronation; the ducal cap being placed with great ceremony on his head. This was performed at his public entrance into St. Mark's church. His yearly income was 15,000 Venetian ducats. He was subject to a variety of solicitations; and he was under the inspection and control of the council of ten, who kept a watchful eye over his whole administration, and, at any time, could come and search his most private apartments. In general, his authority, essentially conferred, was no greater than that of a private person, unless he could influence the whole council. On his death a formal inquiry was made, whether he had abused his power; whether, from a care of his own concerns, he neglected thule of the public; whether he lived agreeably to his dignity, &c. If found guilty of any thing alleged to his charge, his heirs were fined in proportion to the nature of the crime. On Ascension-day, the doge, or, in case of illness, the vice-doge, performed the annual frivolous ceremony of marrying the Adriatic sea. (See Doges.) In the grand council, all nobles of the age of twenty-five years might take their place, though some younger found means to obtain admittance. The senate, or pregadi, were a committee of the grand council, by whom they were also chosen. This senate had the management of the most secret and important state affairs, as the making alliances and peace, declaring war, feeding embassadors, coinage money, filling up offices, imposing taxes, &c. Next was the collegium, in which all public instruments directed to the state and doge were read, audiences given to foreign ministers, and other matters of importance transacted. The procurators of St. Mark had not only the inspection of the church of St. Mark, its library, and the records of the republic, but likewise managed all affairs relating to the poor, together with wills, guardianships, redemption of Christian slaves, and bringing over rigid creditors to a reasonable composition. Their number never exceeded nine: their office was of great authority, and during life; and out of them the doge was generally chosen. Titular or extraordinary procurators of St. Mark were more numerous; the republic gladly filled these titles with a public fearcity of money. Il confiuggio di dieci was a high penal court, which consisted of ten counsellors, the doge, who was president, and his six confiliieri. The established religion was the Roman Catholic; but Greeks, Armenians, and Jews, were allowed the public exercise of their worship, and Protestants, observing privacy, remained un molested. The patriarch of Venice, the chief ecclesiastical of the republic, was chosen by the senate; and though confirmed by the pope, muft, in all other respects, be independent of the papal chair. The territories of the republic were under governors chosen out of the nobility, changed at the expiration of a certain term of years. The annual revenue of the republic was computed at 8,200,000 ducats, and was under the direction of three governors of the Entrate. In war-time, both the nobles and the other inhabitants, even the doge, were proportionably to their incomes, towards defraying the public expences. The flates of Italy subject to the Venetians were the Dogado, the Paduan, the Foligno di Roverigo, the Veronese, the Vicentin, the Bresan, the Bergamasco, the Cremasco, the Trevigiano, the Feltrino, the Bollone, the Cadorino, great part of Friuli, and Istria; to these may be added a part of Dalmatia, the islands of Corfu, Zante, Calabria, and some others. The number of inhabitants in the city of Venice was estimated at 100,000, and of the whole state, at 450,000. In the year 1797, in consequence of some partialities which the Venetians showed to Austria, the French attacked and made themselves masters of the city. By the peace of Luneville, Venice with its dominions was given to Austria; but by the peace of Preidburg transferred to the new kingdom of Italy. In December 1707, prince Eugene Napoleon was created prince of Venice by the emperor Napoleon.

Venice has always been renowned for its cultivation of the fine arts, and for giving birth to great professors, particularly in painting, architecture, and music. At the head of the first, Titian, Paul Veronese, and Tintoret; of the second, Palladio and Scamozzi; and of the third, Zanetti, Lotti, Marcello, and Galuppi; names that can never be heard without pleasure by the votaries of these arts. Printing, too, has been carried on at Venice with great spirit ever since the year 1459, when it was established there by Nicholaus
Nicholas Jansen; and in the beginning of the next century, purified by the Aldi with more accuracy than in any other part of Europe.

But Venice has long manifested its attachment to music by the establishment of its conservatories, or musical schools, of which it has four; the Opificio della Pietà, the Mendicanti, the Incorabile, and the Opisidalletto a S. Giovanni e Paolo; at each of which there is a performance every Saturday and Sunday evening, as well as on great festivals. The performers at them all, both vocal and instrumental, are females; the organs, violins, flutes, violoncellos, and even French horns and double-basses, are supplied by these females. See Conservatorio.

Though the composers of the Venetian school are, in general, good contrapuntists, yet their chief characteristics are delicacy of taste and fertility of invention; but many circumstances concur to render the music of Venice better, and more general, than elsewhere. The Venetians have few amusements but what the theatres afford; walking, riding, and all field-sports, are denied them. This in some degree accounts for music being so much, and in so costly a manner, cultivated; the number too of theatres, in all which the gondoliers have admission gratis, may account for the superior manner in which they sing, compared with people of the same clafs elsewhere. And in the private families, into which the girls of the conservatories marry, it is natural to suppose that good taste and a love for music are introduced.

Venice, in 1659, was the first city in Italy that opened public theatres for the performance of operas; and in less than a century from that period, 658 musical dramas were brought on the several stages of that city, the chief part of which were produced by natives of the Venetian state. In the last century, not only the poetry and music of the lyric theatre were greatly superior to those of preceding times, but the performers; for at Venice all the great vocal talents to which the opera had given birth, were more constantly summoned, patronised, and cherished, than in any other city of Europe.

Accounts are kept at Venice in lire of 20 foldi or mar- chetti; and each foldo is divided into 12 denari di lira. They are also kept in ducats of 24 grofi; and the grofio is divided into 12 grofiotti, or denari di ducato. A ducato of account is worth 63 lire, or 124 marchetti. The gold coins of the old republic are zecchini, or fequins, with halves and quarters. The fequins is commonly reckoned at 22 lire, but its agio fluctuates, and in the year 1805 it was 37 per cent. The silver coins are the fucdo Veneto, or della croce, of 12 lire 8 foldi, and halves and quarters in proportion; the ducatone, or giullina, of 11 lire; the ducato effettivo of 8 lire, with halves and quarters; and base silver pieces of 50 foldi, called laraze, and of 20, 15, 10, and 5 foldi. There are pieces of 10 lire, which were coined in 1796. The copper coins are foldi and half foldi, or bagattini.

When Venice became subject to Austria, in 1797, a base silver money was introduced, called moneta provinciale, which, in 1802, was declared to be out of currency; and a new coinage took place, confiting of pieces of 13 1/4, and 3/4 lira, or, in Austrian money, of 18, 12, and 6 centziners, which contained only a fourth of fine silver, but they were heavier than the former coinage. This money was called "moneta di nuovo flanco." The Austrian government also introduced copper pieces of 6 and 3 centziners, or 10 and 5 foldi, and pieces of 2 and 1 foldi. All the above-mentioned monies and coins are now valued in "moneta piccola," which is the effective currency of Venice.

The bank of Venice was instituted in 1587; its original capital being five millions of ducats. The owners received no interest for their money, but could draw it out on demand, or transfer it in payment, like the banks of Amsterdam, Hamburgh, and other banks of deposit. Bills of exchange were mostly paid in banco, and also wholesale bargains of merchandise above 300 ducats. The bank received no money but sequins and silver ducats. The bank of Venice was in high credit and prosperity from its first institution to the year 1797, when the French feized upon the city, and ceded it to Austria; from this period it declined. In 1805 Venice was incorporated with the kingdom of Italy; and in 1808, the bank was totally discontinued.

According to the rate of coinage at Venice, 684 sequins are equal to a Venetian mark of fine gold, with a very small, but uncertain, quantity of alloy. No remedy was allowed at the mint of Venice, either in the weight or fineness of its coins. The Venetian sequin, weighing nearly 1/24 English grains, is therefore worth 97 6d. sterl. The silver ducat weighs 351 1/2 English grains, and is 9 oz. 18 1/2 dwt. fine, which gives its value at 406d. sterl.; hence the ducat of account of 61 lire piccola is worth 31 1/2d. nearly, and the lira about 6d. sterl.; or, more exactly, 11l. sterl. = 47 lire 8 foldi piccoli. But taking the value of the lira from the coinage introduced by the Austrian government, it will be found worth about 43 1/4; and 1l. sterl. = 56 lire 9 3/4 foldi piccoli.

Venice has two different weights for merchandise, viz. pezo grofio, or large weight; and pezo fottile, or small weight: the pound of the former is divided into 12 oz. and 192 carats, in all 2.504 carats; and the pound of the latter into 12 oz. and 144 carats, in all 1728 carats. The pound pezo grofio weighs 19 oz. 0 pezo fottile; hence 12 lbs. pezo grofio = 19 lbs. pezo fottile; and 18 lbs. pezo grofio, or 28 1/2 pezo fottile = 19 lbs. avoirdupois. A carca is 400 lbs. pezo fottile. The ounce for weighing silk and thread is divided into fix laggri or fazi, and these into halves, quarters, &c. Oil is sold either by weight or measure: a migliao weight contains 40 min, each 25 lbs., in all 1000 lbs. pezo grofio. A migliao measure should contain 1210 lbs., or 40 min, each 30 1/2 lbs. pezo grofio: such a miro answers to about 4 1/2 English gallons. The amphora, a wine measure, contains 4 bigoncia; a bigoncia, 4 quartari, 16 fecchi, or 256 lbs. pezo grofio; but a bigoncia of brandy is only 14 fecchi.

Two forts of long measure are used at Venice, both of which are called the braccio; that for woollens is 26 English inches, and that for silks is 24 English inches. The Venetian foot is 154 French lines, or 13 English inches; hence 36 Venetian feet = 41 English feet.

Venice exchanges with London 50 lire piccola, more or less, for 1l. sterl.; at three months' date. The uaine for bills drawn from London is three months after date. Bills are allowed six days grace, after which they must be either paid or protested. Protests are made by the fanti or clerks of the commercial college, who enter all the bills they have protested in a book, to which every merchant has free access. Thus many bills, which would otherwise be returned, are accepted and paid for the honour of the drawer or indorser. This practice is likewise useful in giving early notice of approaching insolvency. (Kelly's Un. Camb.) Venice is situated 216 miles N. of Rome. N. lat. 45° 28'. E. long. 12° 18'.

VENICE, Gulf of. See Adriatic.

VENICIUM, in Ancient Geography, a town in the interior of the ifle of Corsica, according to Ptolem. VENICNIUM, a people who inhabited the western coaft of Hibernia. Ptol. VENICNIUM PROMONTORIUM, a promontory on the northern coaft of Hibernia. Ptol.

VENI-
VENICONTES, a people of Britain, S. of the Caledonii to the W. whose town was Orlea. Ptol.

VENIERO, DOMENICO, in Biography, an Italian poet, was born of a noble family at Venice in 1517: and after receiving a good education, and being introduced to the friendship of Bembo, and having been thus led into the way of advancement to honourable and lucrative stations, he fell the ufe of his limbs at the age of thirty-two, and was confined to his chamber for life. In this condition he fought solace from poetry and the conversation of his learned friends, who in great numbers returned to his house. These meetings laid the foundation of the celebrated Venetian academy, of which Veniero was the principal ornament. Notwithstanding the pain which he experienced, his poems are distinguished by liveliness of imagery and force of expression. He died in 1582, at the age of sixty-five. His poems were first printed in the collections of Dolce and Rucellii; and they were edited at Bergamo in 1751 and 1753, with those of his nephews, Maffeo and Luigi Veniero, the former of whom was archbishop of Corfu. Their father Lorenzo was also a poet. Gen. Biog.

VENIERE FACCAS, in Law, is a judicial writ, lying where two parties stand, and come to issue; directed to the sheriff, to cause twelve men, of the same neighbourhood, to meet to try the fame, and recognize the truth upon the issue taken.

Afterwards a compulsive process is awarded against the jurors, called bocas corpora juratam, or diligitas, that they may appear upon the day appointed. See Jury.

VENIERE FACCAS is also the name of a writ, which is the proper process in an indictment for any petty misdemeanor, or on a penal statute, and which is in the nature of a summons, to cause the party to appear. And if by the return to such venire it appears, that the party hath lands in the county by which he may be dilrated, then a diversus fquare shall be issued from time to time till he appears. But if the sheriff returns that he hath no lands in his bailiwick, then, upon his non-appearance, a writ of capias shall issue; and if he cannot be taken upon the writ capias, a second and a third still issue, called an alias, and a plures capias.

VENIERE FACCAS in Matrimon. See VENIERE INSEQUENTER.

VENISON, VEXATION, the flesh of beasts of game, or of animals to be caught in the way of game, i.e. by hunting, &c, as deer, hare, &c.

The word is French, venaison; formed of the Latin venatio, hunting.

The old hunters have determined, that every beast of the forest, that is food for man, is venison. In many parts of the world the bears are as regularly hunted as the hare and buck, &c. are with us, and are called venison; but with us, at present, the word venison seems limited to the flesh of the hart, the hind, the buck, the doe, and the other creatures of that kind.

Some have extended the signification of the word to the beasts of the forest which were chased as game, and afforded the diversion of hunting, whether their flesh were eaten or not; thus, in some places, the wolf and the fox are reckoned among the venison beasts.

VENIUS, or VAN-VENIUS, OTHO, in Biography, was of a distinguished family in Holland, and was born at Leyden in 1556. He received an excellent education from his parents, and though his progress in literature was uniform, yet he was permitted to pursue his desire of becoming a painter. He received lessons in design from Isaac Nicolas, but is more indebted to John Van Wagenen. The war in the Low Countries drove him to Liége at the age of fifteen, and there he continued to prosecute his studies in literature and the arts. He acquired the favour of cardinal Grofbeck, at that time prince bishop of Liége, who, desirous of his advancement, advised him to visit Rome, and furnished him with letters of recommendation to cardinal Marduccio, then in that city. On his arrival there he was kindly received and entertained by his eminence, and he became a disciple of Fred. Zuccharo, by whose instructions, and his own industry in studying the beautiful works of antiquity with which he was surrounded, he acquired a very great degree of correctness in design, and a more elevated taste than his countrymen usually exhibited in their works.

Having devoted seven years to his studies in Italy, he visited Germany, where he flaid some time, and received a flattering invitation to remain in the court of the emperor; but his desire to revisit his native country prevailed, and he declined this honourable proposal. As he passed through Münich and Cologne, he was employed by the duke of Bavaria and the elector; and on his arrival at Brufis, the governor, Alexander Farnefe, appointed him his principal engineer and painter, and faw to his portrait.

After the death of his patron he established himself at Antwerp, where he was much engaged in painting historical works for the churches, &c. and gained a great reputation, which has not been diminished by his having had for his disciple fo renowned an artist as Rubens.

When the archduke Albert was appointed governor of the Netherlands, Otho Venius made the designs for the triumphal arches erected on his entry, with which the archduke was so much gratified, that he invited him to Brufis, and appointed him his principal painter, and master of the mint, which situations he occupied till his death in 1634, at the age of 73.

Otho Venius did not confine himself to painting, he wrote and published several works adorned with prints, chiefly engraved by his brother, Gilbert Venius, from his designs. Among them are, a translation of part of Tacitus; Horace's Emblems, with notes and observations; the Life of Thomas Aquinas; and the Emblems of Love, divine and profane.

VENIZY, in Geography, a town of France, in the department of the Yonne; 3 miles N. of St. Florentin.

VENLO, a town of France, in the department of the Lower Meuffe, late the duchy of Guelderdon, situated on the E. side of the Meuffe, takes its name from the two Flemish words Vien and Lex, which signify a low meadow. Before the year 1343, it was only a small town, when René 11. duke of Guelders, fortified it, and gave it the title and privileges of a city. It has only one parish church, which is dedicated to St. John. After several changes of possessors, it was ceded, in 1715, to the States-General by the barrier treaty. In this town was made the first trial of bombs, about 1588; and they were first used by Alexander Farnefe, duke of Parma, at the siege of Watchendoon, not long after. In 1754, it was taken by the French; 12 miles N.N.E. of Roermond. N. lat. 51° 27'. E. long. 6° 24'.

VENNO, a town of the republic of Lucca; 5 miles S.S.W. of Lucca.

VENO, a small Danish island, in the gulf of Lymencid. N. lat. 56° 14'; E. long. 8° 58'.

VENOM, VENISON. See Poison.

The terms venem and venen only differ from each other in this, that the latter is more frequently used where the noxious matter is taken internally, as in foods, drinks, &c., and the former, where it is applied externally, as in the bite of serpents, &c. 

The pike is said to have a venenous tooth. All manner of beasts, in the general, have that quality in greater or less.
when bred in mountains and dry places, than when in wet and marshy places; and the southern more than the northern; those hungry and enraged, more than others; and all of them in summer more than winter. See Viper.

VENONIS, in Ancient Geography, a town of Britain, in the 9th Iter of Antonine, situated between Ratis or Leicester, at the distance of 12 miles from it, and Bannaventum near Daventry; supposed to be the present Cleycester.

VENOSA, CARLO Gesualdo, Prince of; in Biography, a Neapolitan nobleman, whose fame has been extended by his musical productions more than by his high rank, though this rank will be found reciprocally to have added lustre to the compositions, was nephew to cardinal Alfonso Gesualdo, archbishop of Naples, and had his title from the place which gave birth to Horace, the Venafium of the ancients. Pomponius Nenna, a voluminous and celebrated composer of madrigals, had the honour to instruct him in music. His productions consist of six fets of madrigals for five voices, and one for six. The principal editor of his works was Simone Molinaro, maefro di capella at Genoa, who, in 1581, published the fifth five books in separate parts; and, in 1613, the fame madrigals, with the addition of a sixth book, in score.

The numerous editions of these madrigals in different parts of Europe, and the eulogies bestowed on the author by persons who rank high in literature, as well as in music, made us extremely curious to see and examine them. Gerard Vofius, Biaconoii, Bapt. Doni, Taffoni, and many others, speak of him as the greatest composer of modern times; as one who, quitting the beaten track of other musicians, had discovered new melodies, new measures, new harmonies, and new modulation; so that fingers, and players on instruments, defpising all other music, were only pleased with that of this prince.

Taffoni tells us, that James I. king of Scotland, had not only composed sacred music, but invented a new species of plaintive melody, different from all others; "in which he has been imitated by the prince of Venosa, who, in our times, has embellished music with many admirable inventions."

This passage in Taffoni, which has so often been cited by Scots writers, seems to imply, not only that James, king of Scotland, had invented a new species of melody, but that his melody had been imitated by the prince of Venosa; at least, this is the sense in which the passage has been understood by the natives of Scotland, and indeed by ourselves, till, on finding no kind of similarity between the national tunes of North Britain and the melodies of the prince of Venosa, we examined the passage anew, with more attention; when it appeared to us as if Taffoni's words did not imply that the prince of Venosa had adopted or imitated the melodies of king James; but that these princely dilettanti were equally cultivators and inventors of music. See David Rizzio, Scots Tunes, and Ossian.

The Neapolitan prince seems to merit as little praise on account of the expressiof of words, for which he has been celebrated by Doni, as for his counterpoint; for the syllables are constantly made long or short, just as it belt suited his melody; and in the repetition of words, we frequently see the same syllable long in one bar, and short in another, or the contrary; by which it is manifest that their just accentuation was never thought of.

The remarks of Taffoni certainly must have been hazarded either from conjecture or report; as is but too frequently practised by men of letters, when they become musical critics, without either industry or science sufficient to verify their assertions.

The prince of Venosa was perpetually straining at new expression and modulation, but seldom succeeded to the satisfaction of critics, however dazzled his contemporaries may have been by his rank, and the character he bore among the learned, who so frequently get their musical information from tradition, that whether they praise or censure, it is usually sans connoissance de cause.

Dilettanti usually decide in the fame summary way, with an additional prejudice in favour of their own little knowledge, and a disposition to censure whatever they are unable to acquire, be it science or execution.

Cicero has long since said, that "it is not with philosophy and science, as with other arts; for what can a man say of geometry or music, who has never studied them? He must either hold his tongue, or talk nonsense."

With respect to the excellencies which have been so liberally bestowed on this author, who died in 1614, they are all disputable, and such as, by a careful examination of his works, he seems by no means entitled to. They have lately been said to consist in "fine contrivance, original harmony, and the free modulations conceivable." As to contrivance, it must be owned that much has been attempted by this prince; but he is far from being happy in this particular, that his points of imitation are generally unmanageable, and brought in so indiscriminately on conords and discords, and on accented and unaccented parts of a bar, that, when performed, there is more confusion in the general effect than in the music of any other composer of madrigals with whose works we are acquainted.

His original harmony, after scoring a great part of his madrigals, particularly those that have been the most celebrated, is difficult to discover; for had there been any warrantable combinations of sounds that Palestrina, Luca Marenzio, and many of his predecessors, had not used before him, in figuring the bajes, they would have appeared. And as to his modulation, it is so far from being the free modulations conceivable, that, to us, it seems forced, affected, and disgusting.

We have bestowed more remarks on this prince of musicians, and more time in the examination of his works, than perhaps they now deserve, in order to furnish our readers with what seems to our comprehension, a truer idea of their worth, than that which partiality and ignorance have hitherto given. A score of one of his madrigals in the 3d vol. of Burney's Gen. Hist. of Mus. p. 223, will justify our censure of the musical productions of this tuneful prince.

VENOSA, in Geography, a town of Naples, in Basilicata, the see of a bishop, sufragans of Matera. It contains seven churches, and as many convents. In the 9th century, Venosa was taken by the Saracens, and in 1528 by the French; 9 miles N.N.W. of Acerenza. N. lat. 40° 58'. E. long. 15° 45'.

VENOSA Arteria. See Arteria Venosa.

VENOSTA, in Geography, a valley of the Tyrol, on the banks of the Adige; 20 miles S. of Glurnretz.

VENOSUM Foliim, in Botany and Vegetable Physiology, a very leaf. See LEAF and VEN.

VENOUS, VENOSUS. See VENAL.

VENT, in Geography, a river of England, in the county of Cumberland, which runs into the South Tyne.

VENT, formed from ventus, wind, vent-hole, or spireak, a little aperture left in the tubes or pipes of fountains, to facilitate the air's escape; or, on occasion, to give them air; as in frothy weather, &c. for want of which they are apt to burst.

A vent, taken in this fenfe, is properly the end of a pipe, placed
placed erect, and reaching above the ground; usually foled to the turns, or elbows, of pipes. The vents of large pipes are to be as high as the superfcie of the refervoir, unless there be a valve in them.

Vent is also used for a little hole, pierced in vessels of wine, beer, &c. that are on tap; and which admits air enough to make the liquor run, but not so much as to corrupt and spoil it.

Vent, again, is applied to the covers in wind-furnaces, by which the air enters, which serves them for bellows; and which are flopped with regillers, or slices, according to the degree of heat required; as in the furnaces of glafs-houses, alayers, &c.

Vent is also used for a pipe of lead, or other matter; one end of which opens into the cell of a necessafy-houfe, and the other reaches to the roof of the houfe, to give room for the corrupt feid air to exhale.

There are also vents, or apertures, made in the walls which fulfil terraces, to furnish air, and give a paffage for the waters.

This kind of vent the Italians, and we from them, call a barbacane.

Vent, in Gunnerly. See Touch-Hole.

The common method of placing the vent is within about a quarter of an inch from the bottom of the chamber or bore. Some, however, have thought, that if the vent was to come out at the middle of the charge, the powder would be inflamed in less time than in any other cafe; but Mr. Muller, by firing mortars with two vents, one at the bottom and the other in the middle, and fo contrived that one was flutt whilf the other served to fire, found always the range of the shell greater when the lower vent was used, than when the powder was fired by the middle one. Artillery, p. 83.

Mr. Thompson (Count Rumford) has lately made a number of experiments, in order to determine the best position of the vent; from the refult of which it appears, that the effect of placing the vent in different positions with respect to the bottom of the chamber, is different in different charges; but the difference in the force exerted by the powder, which arose from the particular position of the vent, was in all cafes fo inconsiderable, as to afford occasion for concluding, that any given charge of powder exerts nearly the fame force, whatever is the position of the vent. He infers, upon the whole, that in the formation of fire-arms no regard need be had to any suppofted advantages that gunsmiths and others have propofed to derive from particular situations for the vent; such as diminifhing the recoil, increafing the force of the charge, &c.; but the vent may be indifferentiy in any part of the chamber where it will help answer upon other accounts; and he thinks there is little doubt but the fame thing will hold good in great guns, and all kinds of heavy artillery. Workmen in general agree, that the vent in fire-arms should be as low or far back as poiffible, in order, as they conceive, to felfen the recoil: accordingly fome make the bottom of the chamber flat, and bring the vent out even with the end of the breech-pin; others make the vent flanting through the breech-pin, in fuch a manner as to enter the bore juft in its axis; others again make the bottom of the chamber conical; and there are fhoes who make a little cyfindrical cavity in the breech-pin, of about two-tents of an inch in diameter, and near half an inch in length, coinciding with the axis of the bore, and bring out the vent even with the bottom of this little cavity.

The objection to the firt method is, that the vent is apt to be flopped up by the foul matter that adheres to the

Vol. XXXVI.
VEN

VENTA Sierra, mountains of South America, in the province of Venezuela.

VENTALDA, a town of Sweden, in the province of Smaland; 34 miles S.E. of Jonköping.

VENTAROLI, a name given in Sicily, &c. to groottes formed under their houfes, from which itfues a conflant extreeme cold wind, and at times with impetuoufity, and a noife like water dafhing upon rocks. Thefe are that up with doors like cellars, and made ufe of as fuch, as alfo to keep provifions freth, and to cool liquors. At Cefi, in the Roman ftate, there are many fuch ventaroli; and the inha-bitants of that town, by means of leaden pipes, conduct the freh air from thefe into the rooms of their houfes, fo that by turning a cock they can cool them to any degree. Some who have refined fhh more upon this ufed, by smaller pipes, bring cold air under the dining table, fo as to cool the bottle of liquor upon it. On mount Aetna and Vefuvius, and in the ifland of Sicily, there are many caverns of this kind. Phil. Trans. vol. lxx. part i. p. 73.

VENTENATIA, in Botany, was fo named by M. Paliflot-Beauvois, in honour of the late M. E. P. Ventenat, member of the National Institute, a diftinguifhed French botanift, who was formerly an eccleifiastic, and, if we miftake not, of fome religious order; but he took advantage of the revolution to free himfelf from fuch unnatural and immoral fhafticles, in order to fulfil the duties of a man and a C'riflian. He has diftinguifhed himfelf by the publication of a Tableau du Regne Vegetal, fuii la Methode de Jufhieu, in 4 vols. 8vo.; as well as the magnificent Jardin de la Malmaison, with coloured plates, in large folio; and the uncoloured Jardin de Cels, and Chois de Plantes; the latter having been foon cut short by his death. The writer of this article had dedicated to the name of M. Ventenat, a New Holland genus, (fee Stylidium,) which now yields to the prior right that the genus before us.—Pail. Beauv. Fl. d'Oware et de Benin, falc. 2. De Theis 479. Poiret in Lamarck Dict. v. 8. 450. — C'iffs and order, Polyandra Monogynia. Nat. Ord. Tiliaceae Juf.?

Gen. Ch. Cal. Perianth inferior, in three deep, equal, oblong, obtufe, concave, coriaceous, deciduous segments. Cor. Petals numerous (eleven or twelve), spatulate, fpreading, fhongly vifcous ; rounded at the extremity; contracted into a claw at the base. Stam. Filaments numerous, thread-shaped, crefh, unequal, much shorter than the petals, enters, like them, into the receptacle; anthers . . . . .

Pil. Germanus superior, oval; ftyle thread-shaped, un divided, longer than the flaments; stigma thick, obfequrely five-lobed. Peric. Berry oval-oblong, of five cells, furrowed longitudinally, terminating in a kind of mammillary point. Sedic numerous in each cell.

Eff. Ch. Petals numerous. Calyx in three deep deciduous segments. Berry superior, of five cells, with many feeds.

Obfs. M. Paliflot Beauvois remarks, that this genus is obviously referrible to Jufhieu's 13th clafs, (Poiret by miitake fays the 34,) but its order in that clafs is not fo easily determined. Difficulties of the ripe feed are wanting to afcertain this point. The fruit nearly accord with Jufhieu's Aurantia, but the flrucre of the flower, and the want of pellicid dots in the leaves, exclude it from that order. The want of fipulas prevents its perfect agreement with the Tiliaceae, and M. Beauvois confiders this genus as probably making one of a new order, confounded by Jufhieu with his Tiliaceae.

1. V. glauca. Glaucus Ventenatia. Palif. Beauv. Fl. d'Oware et de Benin, 29. t. 17. Poir. n. 1. — Native of elevated, airy, open situations, near Agathon, on the coast of Africa. A furb, with alternate, round, smooth branches. Leaves alternate, falked, very large, elliptic-oblong, entire, tipped with a long acute point; rounded at the base; smooth on both fides; covered on the under furface with a kind of glaucous viscidity, which when dry becomes almoft powdery. Sipulas none. Flowers lateral, towards the extremity of each branch, solitary, falked, alternate, sometimes opposite to the leaves; their fials half the length of the leaves, cylindrical. Calyx short, smooth. Corolla large, of a fine crinfon, beautifully vifcous. Poiret.

VENTER, in Anatomy, the abdomen; called alfo minus venter. See Abdome.

Venter is alfo ufed for the womb, or uterus, of women. And hence the writ de ventre infipidus.

Hence, alfo, in the civil law, we fay, partus sequitur ventrem, the child follows the belly; meaning, that its condition is either free or fervile, according to that of its mother.

They alfo fay, to appoint a curator for the belly, with regard to pollhumous children, yet in the mother's womb. With regard to princes, the venter, or belly, has been fometimes crowned in form.

Venter is alfo ufed, in speaking of a partition of the effects of a father and mother, among children born, or accruing, from different marriages.

This partition is fo ordered, that as a fingle child of one marriage, or venter, takes as much as several of another marriage, or venter; in order to which, the estate is divided into fo many parts as there have been venters, or marriages.

Venter, or Belly, of a fuckle. See Belly of a Mufkle.

VENTER Dractus, Dragon's Belly, in Astronomy. See Dragon's Belly. See alfo DRACON, in Astronomy.

Venter Equi, Horse's Belly, among Chemifls, denotes horfe-dung, or a dunghill, on which are inclosed certain vessels for particular operations, to be perfoved by means of the gentle heat of it.

VENÊTES la Grandes, in Geography, a town of France, in the department of the Lower Seine; 9 miles N.W. of Neufchâtel.

VENTHIE, La, a town of France, in the department of the Straits of Calais; 9 miles N.E. of Bethune.

VENTIA, in Ancient Geography, or Venfjtium Civitas, a town fuated in the Maritime Alps. Dion Caffius, speaking of an expedition, dated in the year of Rome 693, against the Allobroges, who had revolted, mentions a town under this name, at a small diftance from the Ifer. According to some circumstances pertaining to this expedition, there is reafon to believe that it is Venei, between Moirène, or Tuilin and St. Marcellin, at some diftance from the right bank of the Ifer.

VENTIDUCTS, in Building, are spiracles, or subterraneous places, where freh cool winds, being kept, are made to communicate by means of tubes, funnels, or vaults, with the chambers, or other apartments of a house, to cool them in sultry weather.

There are much in use in Italy, where they are called ventidotti. Among the French they are denominated prifons de vents, and palais d'Eole. See VENTAROLI.

VENTILAGO, in Botany, so called by Gartnner, because the appendage to the feed-veil was thought to bear some refeonance to a winnow or flapper, ventilabrum. It does not answer to the common idea of a fan, being neither plaiated, nor much dilated upwards.—Gart. v. 1. 223. t. 49. Wild. Sp. Pl. v. 1. 1106. Roxb. Coromand. v. 1. 55. Mart. Mill. Dict. v. 4. Poiret in Lamarck Dict. v. 8. 452. — Clafs

Gen. Ch. Cal. Perianth inferior, of one leaf, cup-shaped, with five equal, triangular, deciduous, marginal segments. Cor. Petals five, flatulate, inserted into the rim of the calyx, alternate with its segments, and rather longer. Stam. Filaments five, awl-shaped, opposite to the petals, the length of the calyx; anthers of two round lobes. Petal. Germ. superior, inserted below with the tube of the calyx, nearly globose; style short, cloven half way down; stigmas two, divaricata, acute. Peric. Capsule globalus, of one cell, and two valves; splitting at the base; crowned at the summit with an elliptic-oblong, flat, coriaceous, ribbed wing, many times longer than the capsule. Seed solitary, globose.

Eff. Ch. Calyx cup-shaped, with five deciduous segments. Petals five, opposite to the flaments. Capsule of one cell, crowned by an elongated wing. Seed solitary.

Obl. Gaertner did not see the capule in a sufficiently advanced state to discover that it has really two valves, which separate at the base, continuing connected at the apex by their long coriaceous wing, in which the most remarkable character of the genus consists. The flowers are occasionally dioecious, from the imperfection of one or other organ of impregnation.

1. V. madorepatana. Yerra Chiraltay of the Telingas. Willd. n. 1. Roxb. Coromand. v. i. 35. t. 75. (Fucus viminalis; Rumph. Amboin. v. 5. 3. t. 2.)—Native of forests and uncultivated places, among the mountains of Hindoostan and Ceylon, and of rocky thickness on the shores of Ambonya, flowering in the cold season. The stem is woody, climbing to a great extent, with long, round, pliant, tough, leafy, often downy, branches. Leaves alternate, on short flabell, ovate, blunter, two or three inches long, coriaceous, more or less obscurely crenate, feldom quite entire, smooth or minutely downy, furnished with one midrib, and many transverse ones, connected by extremely fine parallel veins. Flowers very numerous, small, greenish-white, in large, terminal, compound panicles, their scent highly offensive, resembling Sterculia fasida. Wing of the calyx entire, greenish-yellow, slightly downy, above an inch in length.—Willdenow, according to Poiret, has distinguished two species of this genus, in the new Transactions of the Berlin Society; one having entire and smooth, the other crenate and downy, leaves. But we are persuaded, from an examination of wild specimens from Roxburgh and Koenig, that these characters are variable.

VENTILATION OF Mines, comprises the various modes by which impure air is removed, and a current of atmospheric air propelled through the subterranean openings and passages of mines. The health, the safety, and lives of a very large and industrious class of the community depend on the regular ventilation of mines; yet the application of the principles on which this should be undertaken has been but imperfectly understood, and it is but very recently that the subject has engaged the attention of men of science. Since the constitution of the atmosphere was ascertained, (see ATMOSPHERE,) it is well known that the one-fifth part of it, or the oxygen gas, is essentially necessary to support the processes of respiration or combustion, by which it undergoes a chemical change, and is converted into carbonic acid gas, a gas destructive of animal life, and in which flame is instantly extinguished. It is also well known, that the remaining four parts of the atmosphere, or the azote, are equally destructive of life, and incapable of supporting flame; hence the necessity of ventilation, or a regular supply of fresh air, in all confined situations, where men are to labour or exist, is very easily explained. Besides the destruction of oxygen gas by respiration or combustion, which takes place in confined apartments above ground, there are other causes that render the air impure in almost all subterranean passages or mines, through which there is not a regular current of wind constantly passing. The causes by which the air in mines is rendered impure, or destructive of animal life, are of three kinds. First, the respiration of men and horses in the mine, and the combustion of the lamps, &c.; secondly, the production and evolution of carbonic acid gas in the beds or strata in which the mine is situated; and thirdly, the production of carburetted hydrogen or inflammable gas. For the properties of these gases, see Gas. The two former sources of impurity are much less destructive of life than the latter, the inflammable gas or fire-damp of the miners: when this becomes mixed to a certain degree with the air of the mine, it explodes with great violence on the approach of a lamp or candle, and occasions the most fatal accidents, destroying all the vital air in the mine, and burning or suffocating the workmen. By explosions of this nature, it was estimated that not less than five hundred persons perished during the years 1814 and 1815, in the coal-mines on the rivers Tyne and Wear, in Northumberland and Durham; and the destruction of human life in other coal districts has been necessarily equally great, in proportion to their extent. In the ventilation of mines, where the air is impure from respiration, combustion, or the evolution of carbonic acid gas, called by the miners choak-damp, the object of the miner is simply to introduce a current of fresh air; through the workings; but besides the difficulties to be overcome in effecting this, where the works are extensive, the miner who has to combat with the fire-damp must guard against the greatest evil of an explosion, to which he is almost constantly exposed.

In the working of metallic mines, the veins being generally nearly vertical, the currents of water, or the natural passages, aided by the varied temperature of the mine, are frequently sufficient to infuse the circulation of air; and these mines are very rarely affected by the production of the fire or choak damp. It is principally where a shaft or well is sunk, or a horizontal passage or gallery is made, that any means of artificial ventilation are necessary. The most obvious remedy, and that which is most frequently resorted to, is opening a communication with some other part of the mine, or with the surface; and when this is done, the ventilation is found to be perfect by the rushing of the currents, which often takes place with considerable force, from the different degrees of temperature in the lower and upper air, and these currents change their direction as the temperatures above and below alternate. The great objection to this mode is the expense with which it is commonly attended wherever the gallery is at a great depth, and the intervening rock of a very hard kind, and where a shaft is merely wanted to supply air, and not for the passage of the water. To avoid this, the shaft or level is sometimes divided into two distinct parts, communicating near the part intended to be ventilated, so that a current may be produced in opposite directions on each side of the partition; and this is often effectual to a certain extent. It has, however, its limits at no very great distance, and the current is but a feeble one, from the nearly equal temperature of the air on each side of the partition.

The other mode employed is to force air down tubes with a large pair of bellows worked by the hand, or by boxes or cylinders of various forms placed on the surface, with a large opening against the wind, and a smaller one communicating with the air-pipes by a cylinder and piston.
work in it, and when driven by a sufficient force, this has
great power. Mr. John Taylor, in the Transactions of the Society of
Arts for 1810, has described a method of effecting this process
more easily, by attaching an air-pump of a very simple con-
struction to a small fall of water. The engine discharges
more than two hundred gallons of air in a minute, and a
stream of water supplied by an inch and a half bore falling
twelve feet is sufficient to keep it regularly working. This
method may be introduced with great advantage into narrow
passages or wells, but would be obviously inadequate to
ventilate the immense excavations in coal-mines. Except it
were confined to some confined part of the works. In
metalliferous mines, the generation of the fire-damp is much
less frequent than in coal-mines, and the extent and position of
the excavations make the ventilation of the latter a
labour of much greater difficulty. The most valuable beds of
coal in England, with the exception of Staffordshire, are
from two to nine feet in thickness, and they rarely incline
more than about fifteen or twenty degrees from the horizon-
tal level, and are frequently nearly flat. Each pit has two
shafts or wells, called the downcast pit and the upcast pit.
The excavations or passages in the coal, which communicate
from one pit to the other, are frequently not less than forty
miles or more in length, through which circuitous route the
air has to take its course, though the distance from the
downcast to the upcast shaft, in a right line, may not be
more than a few hundred yards or feet, or even much nearer.
And here we cannot but observe, that as the means to force
the air through a route of such extent must be very com-
plicated, and as a failure or accident to a part might de-
stroy the whole ventilation, we conceive that much too large
a surface is frequently worked from two shafts, in order to
avoid the expense of additional shafts for several detached
workings of a smaller extent. By this, the risk of the
workmen is greatly increased, to save expence to the
owners of the coal. In the year 1813, some gentlemen in the
north of England, impressed by the dreadful catastro-
phes which had recently taken place, very laudably esta-
lished a society, with a view to inquire into the causes of
these calamities, and the possible means of prevention.
They entitled themselves "A Society for preventing Acci-
idents in Coal-Mines." Mr. John Buddle, an eminent coal-
viewer in Northumberland, addressed a letter to the prefi-
dent, which was published by the society in 1815. In this
letter he details the various methods which had been em-
ployed for the prevention of accidents by fire, which, he
says, "conflict in a mechanical application of the atmo-
spheric air to the removal or sweeping away of the inflam-
mable gas, as it is generated in the workings of collieries, or
as it issues from the fissures which the workings intersect in
their progress." He details the various methods by which
this is effected: these are explained by a number of figures
and sections, without which they could not be rendered in-
telligible to the reader. We shall endeavour to give an idea
of the principle on which the various modes of ventilating
mines depend, by stating one of the simplest forms in which
they can act. If two wells or shafts were sunk at a given
distance, five yards from each other, and a horizontal
passage were cut from the bottom of one well to the other,
so soon as the communication were made, there would be a
tendency in the air to defend one shaft and ascend the other,
whenever the temperature of the external air varied from
that of the air below. The currents of air in natural cavities,
that are open at each extremity, proceed from the
same cause. In certain latitudes of the atmosphere, should the
current not be sufficient, or should a quantity of impure air
be generated in the passage, the circulation may be increased
by kindling a fire at the top or at the bottom of one of the
wells, to rarefy the air and cause it to ascend more rapidly.
Or the air may be forced down the other well, by causing a
stream of water to fall into it. Also by means of vanes, or
by an air-pump attached to a steam-engine, the circulation
may be easily increased according to the will of the engi-
neer, and the facilities which may be preferred for carrying
away the water, &c. Thus little difficulty could arise in a
cache of simple ventilation of this kind; but if from the hori-
izontal passage which runs from one shaft to the other, we
pass to a number of passages on each side at right angles with
it, as is the case in the current of air which passes
through it will not enter these lateral passageways, or occasion
any circulation in them. In order, therefore, to make the
air pass through the whole series, another passage must be
opened, connecting the further extremities of the lateral
passageways with each other; the first passage must then be
closed, and the air which descends continued along the
lateral passageways, up one and down the other, taking a cir-
cuitous route through the whole, until it arrives at the up-
cast shaft, which it ascends. To conduct the air in this
manner, a number of trap-doors and flaps are necessary, in
order to prevent the mixture of the air from the different
passageways, which would entirely destroy the ventilation. See
Plate IV. Geology, fig. 8, which represents part of the
workings of a coal-mine; the shaded part is the bed of
coal, in which the workings are carried along the different
passageways, from the pit or shaft a, to the pit or shaft b.
The current of air is represented by darts and dotted lines.
The flaps and trap-doors, which close to prevent the passage
of the air, and confine the currents to a particular course,
are represented by double lines and cross lines, as at &. This
figure represents the improved system of ventilation,
by which the current of air sweeps every part of the work-
ings. By tracing the darts and dotted lines, it will be seen
that the current of air from the downcast pit a, first passes
along the main passage to A, and the adjoining passage
M B, to which it has access through lateral passageways, called
wells, 1, 2, 3, 4: its further progress in every direction is
closed, except at 5, where it enters the passage C, from
which it has access to the passage D, through the openings
6, 7, 8, 9: at E, the currents unite in one stream, and enter
an advanced part of the workings, called the head-ways, ven-
tilating the passageways F and G, being forced into them by
partitions called braclets, placed at X X, round which the
air must pass in its progress to H.
Where the current of air divides and sweeps along two
passageways at the same time, and unites again as above-
described, it is called double couring; but where it runs
down one passage and up another, as may be seen in its
further progress from H on the south side, to H on the north
side of the mine, it is called single couring.
The remaining part of the ventilation back to the passageway
K, is in double couring, along which it is forced by the
flapings at 1, 2, 3, and the other flapings 4, 5, 6, until
it ascends the upcast shaft at b. Under this system, says
Mr. Buddle, if the flapings, &c. be all in order, and the
passages kept sufficiently open for the current of air to circu-
late freely, there can be no partial stagnations in the work-
ings,—no accumulation of inflammable gas. For in the event
of a large discharge of gas, from what is called a blower,
commencing at any place, as at M, N, P, Q, its fire is
immediately carried off by the circulating current of atmo-
spheric air, and so diluted that it cannot explode, unless
indeed the discharge of inflammable air should be so copious
as to mix with the current up to the firing point, or to that
degree
VENTILATION.

degree in which it would inflame by access to a lighted candle or to fire.

This improved system of ventilation by double courses was introduced into the collieries on the Tyne and Wear about the year 1760, and has ever since continued in general use; but it is found inadequate to the intended purpose in the following cases:

1. When sudden discharges of inflammable gas mix with and raise the whole circulating mafs of air to the firing point.
2. When the wind is south-eaft, and the weather wet or lamy, and the barometer sinks below twenty-nine inches.

In this cafe the atmoferic current, which under the most favourable state of the air is merely sufficient to fweep the noxious effuflia from some mines, gets fo contaminated by the discharge of inflammable gas, and the fławness of its own progres, as to be exceedingly unsafe, and generally inacceffible with candles.

3. When inflammable air fills a part of the mine between the workmen and the upcast shaft.
4. When the gas is ignited by lightning, as it afcends the upcast shaft.

The preffence of inflammable gas from the lighted mixture, through all its gradations to the firft firing point, is readily difcoverable by an experienced collier, and he judges very correctly of the degree of inflammabillty and danger which threaten the safety of the mine, by obferving attentively the appearance of the fire upon the top of his candle. The common pit-candles vary in fize, but thofe generally used are forty-five to the pound; the wick is of cotton, and the candle made of ox or sheep tallow: but clean ox-tallow is best.

The mode of trying the candle, as it is called, to ascerfain the mixture of inflammable gas, is as follows:

In the firft place, the liquid fat is wiped off, the wick faufed clofe, and carefully cleaned of red embers, fo that the flames may burn as purely as pooffible. The candle, being thus prepared, is held between the fingers and thumb of the one hand, and the palm of the other is placed between the eye of the obferver and the flame, fo that nothing but the fire and the flame can be feen, as it gradually fovers over the upper margin of the hand. The obfervation is generally commenced near the floor of the mine, and the light and hand are gently raifed up, till the true flate of the circulating current be ascerfain.

The firft indication of the preffence of inflammable air is a light ting of blue or a blue-fky colour shooting up from the top of the fire to the candle, and terminating in a fine extended point. The fire increafes in fize, and receives a deeper ting of blue as it rises through an increafed proportion of inflammable gas, till it reaches the firft point; but the experienced collier knows accurately enough all the gradations of fhow (as it is called) upon the candle, and is very rarely fired upon, excepting in fudden discharges of inflammable gas. The fhow upon the top of the candle varies very much, according to the length of run or diftance which the current of air has paffed through before it is mixed with the inflammable gas. The shorter the run of the current of air before it is mixed with the inflammable gas, the fhow will be the fhow upon the candle when at the firft firing point, and vice versâ.

The fame fize of fhow which would indicate danger in a current which had paffed only one mile, might be perfectly harmless in a current that had run five or fix miles; confequently the length of run of the current of air is to be taken into confideration, as well as the appearance of the top of the candle. The air-courses, too, for a short diftance beyond a small fhow or discharge of fire-damp may be highly inflammable; but by paffing a few yards further, it becomes fo diluted as to be perfectly secure. The diftance, therefore, within which a blower can be fafely approached with candles, is regulated entirely by the magnitude of the discharge and power of the current of air. Long eperience and careful obfervation are confequently necelfary to obtain a thorough practical knowledge of this art.

The workings of a colliery are very often inacceffible with candles near the downcast pit, called the firft of the air, while they may be fafely entered with any description of light near the upcast pit, called the fift of the air. This arises from the inflammable gas, as it is carried from the place of its discharge, being gradually diluted by the atmoferic current. Hence the advantage of fufficient extent of pit-room, to obtain length of run to dilute the inflammable air. It is from the want of pit-room, that the explosions in newly-opened collieries are generally the moft violent. The diftance which the current of air paffes through, between the downcast and the upcast pits, varies much according to circumftances. Mr. Biddle has known it to exceed thirty miles.

After the current of atmoferic air is fo highly mixed with inflammable air as not to be inacceffible with lighted candles, fteel-mills may be employed with safety. We fhall further notice Mr. Biddle's obfervations on fteel-mills, but we believe the discovery of the safety-lamp will entirely fupercede their ufe. "Although the inflammable air has frequently fired at the fpars of the fteel-mills, it only happens, from all the facts which I have been able to collect, when the mills are played near the place where the hydrogen gas is difcharged, and this by due attention may be eafily avoided.

"I never indeed witneffed an explosion from the fpars of fteel; but from my own obfervations on their appearance in dangerous fates of the air, as well as from the obfervations of several intelligent men, I believe that in many cafes the change of the appearance of the fpars, if attentively obferved, gives fufficient notice of the threatening danger. When elicited in atmoferic air, they are of a bright appearance, rather inclining to a redbit hue, and as they fly from the wheel feem sharp and pointed. In a current of air mixed with inflammable gas above the firing point with candles, they increafe conliderably in fize and become more luminous. On approaching the firing point with fteel-mills, they grow still more luminous, and assume a fort of liquid appearance, nearly resembing the fpars arifing under the hammer from iron at the welding heat. They also adhere more than usual to the periphery of the wheel, encompassing it as it were with a dream of fire, and the light emanating from them is of a bluflit tint. When the inflammable gas predominates in the circulating current, the fpars from the fteel-mill are of a blood-red colour; and as the mixture increafes, the mill totally ceafes to elicite fpars. They have the fame bloody colour in carbolic acid." The fteel-mill here mentioned is what has been ufed till very recently in coal-mines, consisting of a wheel and spring, which is wound up and let in motion, when by a conftant collision of flint and fteel it is elicited, eliciting a copious flream of fpars.

With the concluding remarks of Mr. Biddle's letter we can by no means agree, when he adds, "On the strength of my own experience in collieries thus circumfcribed, I freely hazard my opinion, that any further application of mechanical agency towards preventing explosion in coal-mines would be ineffectual." Among the means enumerated by this gentleman, the very obvious one of depending on the greater specific levity of the carbonifed hydrogen gas is entirely omitted;
omitted; nor is it even stated, that the general inclination of the air to prevent facilities for the ascent of the inflammable air, were requisite precautions taken to conduct it by channels to the mouth of the uptake pit, which in many situations might be done at a trifling expense.

The public have been given to understand, that an improved and complete system of ventilation, depending on this principle, had been introduced into some of the Staffordshire collieries; but on recent inquiry at the place, we were informed, that the method of ventilation proposed by Mr. Ryan had never been carried into practice to the full extent stated, but considerable advantage had been derived from a partial application of the principle, by making channels near the roof of the mine for the escape of the inflammable gas.

Where the air rises regularly for a considerable extent, unbroken by faults, it appears easy to discharge the inflammable gas as fast as it is generated. The specific gravity of carburetted hydrogen is little more than one-half the weight of atmospheric air, being as .555 to 1000. If, therefore, it were conducted along the roof by an unobstructed passage to the uptake shaft, it would rise and discharge itself.

Explosions not unfrequently take place at the uptake shaft, from the inflammable air passing near the fire placed at the bottom to rarify the air and increase the circulation. The only expedient at present suggested is the use of charcoal, as the gas will not ignite at a red heat without flame; but charcoal does not promote so rapid a circulation of air as coal or wood, which produce smoke and flame. The carbonic acid gas generated by the combustion of charcoal, being also heavier than atmospheric air, would, in some degree, retard the ascent of air from the uptake shaft; and if a small particle of coal fell upon the charcoal fire, it would produce flame, which might cause an explosion.

A series of most interesting experiments was undertaken by Sir H. Davy in 1815, on the degree of inflammability of different mixtures of carburetted hydrogen when passed through small tubes or apertures, which led to the very important and unexpected result, that carburetted hydrogen, mixed with atmospheric air in the proportion which is most explosive, and then ignited, will not set fire to another portion of the same air, separated from it by a sieve of small wire, the meshes of which amount to two hundred and fifty in the square inch. On this principle he constructed a lamp surrounded by a small wire-ribe in the place of horn or glass, having no aperture for the admission or recombination of air but through the meshes of the sieve. This lamp, when lighted, was found to burn in explosive mixtures with perfect safety, the flame being confined within the lamp by the intervening wire-ribe. This lamp has since undergone considerable improvements, and some of the objections to which it was first exposed have been removed. Important additions to it are still making by its illustrious inventor.

For a full account of its construction and recent improvements, we must refer to the article Wire-Gauze Safety-Lamp.

VENTILATOR, a machine by which thenoxious air of any close place, as an hospitall, gaol, ship, chamber, &c. may be discharged and changed for fresh.

The noxious qualities of bad air have been long known; and no one has taken greater pains to fet the mischief arising from foul air in a just light than Dr. Hales; who has also proposed an easy and effectual remedy by the use of his ventilators; his account of which was read to the Royal Society in May, 1741. In the November following, Mr. Trievald, military architect to the king of Sweden, informed Dr. Mortimer, secretary to the Royal Society, that he had in the preceding spring invented a machine for the use of his majesty's men of war, in order to draw out the bad air from under their decks, the leaf of which exhausted 36,172 cubic feet of air in an hour, or at the rate of 21,732 tons in twenty-four hours. In 1742 he sent one of them, formed for a sixty-gun ship, to France; which was approved of by the Royal Academy of Sciences at Paris; and the king of France ordered all the men of war to be furnished with the like ventilators.

The ventilators invented by Dr. Hales consist of a square box, A B C D (Plate XVII. Pneumatics, fig. 1.) of any size; in the middle of one side of this box a broad partition, or midriff, is fixed by hinges X, and it moves up and down, from A to C, by means of an iron rod Z R, fixed at a proper distance from the other end of the midriff, and paffing through a small hole in the cover of the box up to R. Two boxes of this kind may be employed at once, and the two iron rods may be fixed to a lever F G (fig. 2.) moving on a fixed centre O; so that by the alternate raising and pressing down of the lever F G, the midriffs are also alternately raised and depressed, by which these double bellows are at the same time both drawing in air, and pouring it out through apertures with valves made on the same side with, and placed both above and below the hinges of the midriffs. In order to render the midriffs light, they are made of four bars lengthwise, and as many across them breadthwise, the vacant spaces being filled up with thin pannels of fir-board; and that they may move to and fro with the greater ease, and without touching the sides of the boxes, there is an iron regulator fixed upright to the middle of the end of the box A C (fig. 1.) from N to L, with a notch cut into the middle of the end of the midriff at Z, so that the midriffs, in rising and falling, suffer no other friction than what is made between the regulator and the notch. Moreover, as the midriff Z X moves with its edges only one-twentieth of an inch from the sides of the box A B C D E F, very little air will escape by the edges, and, therefore, there will be no need of leathern sides, as in the common bellows. The end of the box at A C is made a little circular, that it may be better adapted between A and C to the rising and falling midriff; and at the other end, X, of the midriff, a slip of leather may be nailed over the joints, if needful. The eight large valves, through which the air is to pass, are placed at the hinge-end of the boxes B K (fig. 2.) as at 1, 2, 3, &c. The valve 1 opens inward to admit the air to enter, when the midriff is depressed at the other end, by means of the lever F G. And at the same time the valve 3 in the lower ventilator is shut by the compressed air which passes out at the valve 4. But when that midriff is raised, the valve 1 shuts, and the air passes out at the valve 2. And it is the same with the valves 5, 6, &c. of the other box; so that the midriffs are alternately rising and falling, and two of the ventilators drawing in air, and two blowing it out; the air entering at the valves 1, 3, 6, 8, and passing out at the valves 2, 4, 5, 7. Before these last valves there is fixed to the ventilator a box Q N M (fig. 3.), as a common receptacle for all the air which comes out of these valves; which air passes off by the trunk P, through the wall of a building.

For a farther account of this machine we refer to the author himself, who gives a full detail of it, and of its manner of working. See Description of Ventilators, by Stephen Hales, D.D. Lond. 1743, 8vo.

The doctor has shewn the use of his ventilators very fully. As to ships, in particular, he observes, that the wind-fail, (see Wind-Sail,) made use of at sea to introduce fresh air between
between decks, is far from being sufficient for that purpose; nor can it be used with equal safety to the sick, and those who are sleeping, by means of the strength of the wind, which conveys the air with too much violence. But when the foul air is carried off by means of ventilators, notwithstanding the great velocity with which they throw out the air, which they may do at the rate of sixty tons in a minute, yet the motion of it downwards into the hold, to supply what was carried off, is so very gentle that it cannot be perceived; because the sum of all the open passages for it through the deck exceeds the opening of the trunk of the ventilator, in so great a proportion as 100 to 1, or more. Besides, in a calm, the wind-fail can do little or no good; nor when the ship is under fail, at which time the wind-fail is not used. And it is to be observed, that it is not the ventilating of a ship now and then with a wind-fail, when wind and weather serve, that will suffice; it ought to be done daily, if due regard be had to the health of the ship's crew. The great quantity of rancid noxious vapours, which are incessantly exhalating from a number of living human bodies, the stench that incessantly arises from the bilge-water, and from the hot, flagrant, putrid air in the hold, makes it very advisable to refresh so bad an air continually, either with the wind-fail, when that can be properly used, or else with ventilators, which are intended to supply the defects of the wind-fail.

Ventilators must also be of particular service in new ships, which are observed to be more unhealthy, on account of a greater quantity of sappy wreck which arises from new timber, and makes the confined air the more unwholesome. They will also be an effectual preservative of horses in transports, where they are sometimes suffocated, when in a storm there is a necessity to shut the hatches down.

These ventilators will also drive out of the hold of a ship that dangerous vapour which arises from corn, which is so noxious, that sometimes they dare not venture into the hold, till after the hatches have been opened for some time.

Ventilation will not only be of service to preserve several kinds of goods, but also the timbers and planks of the hold itself; when laid up in ordinary, as well as when in use, and will make the air in the hold less noxious, though it will still be offensive to the smell, by reason of the bilge-water. But this may be made less offensive, by often letting in sweet water from the sea, and then pumping it out; which good practice ought to be continued, notwithstanding the use of the ventilators.

What is here said of the foul air of ships may be applied to that of mines, gaols, workhouses, barracks, and hospitals. In mines, ventilators may guard against the suffocations, and other terrible accidents arising from damp; which fee. (See also Ventilation.) The air of gaols has been often known to be infectious; and we had a fatal proof of this, by the accident that happened some years ago at the fissions at the Old Bailey. To guard against the like for the future, as well as to preserve the health of the prisoners, a worthy magistrate, in 1752, had ventilators placed in Newgate, which were wrought by a windmill; and in the beginning of the year 1753, Dr. Hales gave an account of the good effects attending the use of these machines, by a remarkable decrease in the usual mortality and sickness of that place. Although the old prison at Newgate is now taken down, and a much more commodious one erected near the same spot, it may not be improper to give a brief account of the manner in which the ventilators of Dr. Hales were contrived, and how they were moved by the windmill annexed to them. The midriffs, b, b, (fig. 4) of these two ventilators, two pairs of which were laid upon one another, were each nine feet long, and four and a half wide, and moved up and down by the flat iron rods, e, e, passing through the lower and upper ventilators, and through an iron plate at s, about three inches square; over which is another broader iron plate, with a wide hole in its middle, to give room for the iron rod at g to move sideways to and fro, with the under plate, the hole of which exactly fits the iron rod, so that no air can escape at g; and there are the like plates at i, the top of the ventilator; and at f, g, are joints, where the iron rods are fixed to the midriffs, by which means both are moved up and down at the same time; and the iron rods of both sides of the ventilators being fixed to one common lever at r, e, all the four midriffs are thereby alternately worked up and down at the same time. The valve-holes v, v, x, x, &c. are twenty-three inches long, and six and a half wide, covered with buckram glued on them, and move on lifts of tanned sheepskin, and fall on lifts of woolen cloth nailed round the valve-holes. A very large nofe (fig. 5.) is fixed with iron hooks k, k, to the ventilators l, l; and this nofe is divided into three spaces, the middle and largest of which, m m, receives all the foul air blown into it from the eight middle valves x, x, x, x, (fig. 4.), whence it passed through a trunk t, t, sixteen inches wide, through the leads of the prision, into the open air, the top of this trunk being covered with weatherboards to keep the rain out, and the middle valves hanging so as to open outward. The two other outer spaces of the nofe p, p, receive the foul air, drawn into them, from the several wards, through the trunk s, s, and passing off into the ventilators, through the eight outer valve-holes v, v, v, v, whose valves open inward. In these outer partitions of the nofe there are two holes z, z, (fig. 5.) covered with boxes, in the bottom of each of which there is a large moveable valve, opening upwards, and towards the ventilators; these are made of such a weight, as to open only when all the trunks to the several wards are shut: by which the ventilators will always be supplied with air, so as not to endanger the breaking of the midriffs for want of it.

These ventilators, about eighteen inches deep in the clear, were fixed in an upper room of Newgate, in order to be near the windmill on the leads, which worked them. From each of the outer midriffs there went a trunk, twelve inches in the clear within, and from these trunks, which descended through all the floors as far as a little below the ceiling of the ground rooms, lesser trunks, six inches square, within, branched off, near the ceiling of every room; and extended more or less into the several wards, so that when the foul air was drawn out of any ward, the fresh air might enter on the opposite side, and drive out all the foul air before it. By other contrivances with sliding shutters and handles, the several wards might be ventilated at such a time, or in such a degree, as was found necessary. In the case of a prison that is built with an open area in the middle, Dr. Hales observes, that the side of the prison which is opposite to the side where the ventilators are, may be comminually ventilated in its turn, by having a round brick air-gutter under ground; through which the foul air of those wards might easily be drawn.

The windmill for working the ventilators was contrived to move with a small degree of wind, and to obtain a sufficient power in a small compass. In fig. 6., is one of the cross-tees which support the mill-pole, and the braces, c, c, the
the cross-trees reat on the blocks $a$, $a$, and are fixed to the floor by strong iron bolts. The mill-pole $d$, being hollow, and the head or base $b$ being passed through from the crank of the iron axle-tree $i$; the turning-frame $g$ moves on the girdele $f$, on which lies a broad circular iron plate, where is the bearing of the brafs friction-wheels, whose iron axle-trees move in brafs collars: the turning-frame $g$ carries the axle-tree $i$, and the fails $k$, which are turned, so as always to face the wind, by the vane $b$; the frame is kept from wrack- ing by iron braces $g$, $r$, represented by the double pricked lines. The crank $x$ is six inches and a half long, and therefore gives a stroke of thirteen inches; but the lower end of the rod $x$ is fixed to the lever of the ventilator (fig. 4) at such a distance from the centre of its motion, as to raise and fall the middriff fifteen inches. The iron axle-tree extends forward, about two feet and a half beyond the face of the fails; from the extremity of which, $z$ eight iron braces, $l$, go to each arm, to which they are fastened by iron screw-bolts, which bind them and the iron circle of pricked lines $m$ (fig. 7) fall together: the diameter of this circle is six feet, and the sarms or arms of the mill $k$ are seven feet three inches long, and they are mortised into the drum $y$. A void space of about fix inches breadth is left between the fails, as represented in the figures, that the direct current of the wind, as it passed through, might give a turn to the course of the wind; which otherwise, being driven obliquely from the face of the preceding fail, would be forced to act on the back of the following fail, and thereby abate the force, and retard the motion of the mill. The brake-pole (fig. 6.) is $n$; and the single pricked line $t$ at the end of it is the sword which is to clasp round the nave to fl op the mill, by pulling the rope $w$: $o$ is the bottom shear-tree of the turning-frame; and $p$ expresses the manner of screwing the brafs collars of the axle-tree nearer and nearer, as they wear away. For a farther account of this machine, see Hales's Treatise of Ventilators, part ii. 1758, p. 32, &c.

Dr. Hales farther suggests, that ventilators might be of ufe in making falt, in order to which there should be a fream of water to work them, or they might be worked by a windmill, and the brine fhould be in long narrow canals, covered with boards or canvas, about a foot above the surface of the brine, in order to confine the fream of air, fo as to make it act upon the surface of the brine, and carry off the water in vapours. Thus it might be reduced to a dry falt, with a faving of fuel, in winter and fummer, or in a rainy or dry flate of the air. Ventilators, he apprehends, might also ferve for drying linen hung in low, long, narrow galleries, efpecially in damp, rainy weather, and also in drying woolen cloths, after they are full’d or dyed, and in this cafe they might be worked by the fulling water-mill. Ventilators might also be an ufeful appendage to malt and hop-kilns; in which cafe it would be beft to have the air-trunk enter the kiln about eighteen or twenty-four inches from the ground, and juft opposite to the fire; but in order to prevent the air's blowing too strongly on the fire, a feam of brick-work might be formed about a yard distant from the hole of the air-trunk, and a yard square; for thus the air from the ventilators would be better diffufed through the whole kiln.

Dr. Hales is alfo of opinion, that a ventilation of warm dry air from the adjoining flove, with a cautious hand, might be of ufe to trees and plants in greenhouses; where it is well known that an air full of the rancid vapours, which perifh from the plants, is very unkindly to them, as well as the vapours from human bodies are to men. For freh air is as neccfary to the healthy flate of vegetables as of animals.

The larger kinds of ventilators ufed by the doctor, are ten feet long, five feet broad, and two feet high in the clear within. Thole he ufed by way of experiment on board the Captain, a seventy-gun ship, were ten feet long, four feet three inches wide in the clear within, and thirteen inches deep; one inch of which being occupied by the middriff, there remained a foot depth for it to rise and fall in. A ventilator of these dimensions will, through a trunk of a foot square, drive the air at the rate of twenty-five miles in an hour, which is double of what Mariotte affigns for the velocity of a pretty strong wind.

But besides these large ventilators, the doctor made a smaller falt, four feet in length, fixteen inches in breadth, and thirteen inches deep, all in the clear within. This smaller ventilator may be very ufeful in preferring the bread, in the bread-room of a ship, fweet and dry. Peafe alfo, and oatmeal, which are apt to heat and fpoil in cafsks, may be preferred, by putting them into a large bin, with a falf bottom of hair-clath laid on bars, by which freh air may be blown upwards through them with thefe small ventilators.

Ventilators are alfo of excellent ufe for the drying of corn, hop, and malt. See Granary.

Gunpowder may be thoroughly dried, by blowing air up through it by means of ventilators. What advantage dry gunpowder has over that which is damp, may be fecn by the experiment mentioned in the article Gunpowder.

Thofe small ventilators will alfo ferve to purify moft easily and efl'ectually the bad air of a ship's well, when there is occafion for perfon's to go down into it, by blowing air through a trunk, reaching within a yard of the bottom of the well, both for fome time before, and during their flay there. They may alfo be made ufe of at fea to fweeten flinking water, &c. See Sea-Water.

Dr. Hales made alfo feveral trials for curing ill-tafled milk by ventilation.

For thefe and other ufc's to which they might be applied, as well as for a particular account of the confttruction and disposition of ventilators in fhips, hospitals, prisons, &c. and the benefits attending them, see Hales's Treatise on Ventilators, part ii. paffim; and Phil. Tranf. vol. xii. p. 322, &c.

The ventilators in large ships, since the order for ventilating the fleet, iffued by the lords of the Admiralty in 1756, are fixed in the gunner's fore-floore-room, and generally a-head of the faii-room. The foul air is carried up through the decks and fore-calle, near the fore-maft, {sometimes afore it, and {ometimes abait it, but more frequently on its {barboard {ide; the lever, by which the ventilators are worked, is under the fore-calle in two-deck {hips, and be{teen the upper and middle decks in three-deckers; sometimes the lever is hung athwart-ships; in some {hips afore and aft; and in others oblique. The iron rod, which communicates the motion from the lever, passes through the partners of the fore-maft, and is connected with another lever, i{pended at or near the middle; in some {hips {over the ventilators; in others under them, when it is found nece{fary to fix them up to the deck. The bell method to fave room is to place the ventilators over one another, with their {ircular ends together; the air-trunk {hould be fo high above deck, that the men on deck may not be incommo{ded by the foul air which {blows out of it; and therefore the trunk comes through the upper deck, near and behind the
the fore-mast. Dr. Hales has calculated the following table
for the sizes of ventilators, &c. adapted to ships of war.

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The construction of twenty-gun ships being various, the sizes of ventilators for these must be left to the direction of the officers of the yard.

When the hold is to be ventilated from one end to the other, the three doors of the gang-way into the gunner's floor-room must be opened, and all the gratings on the gun-deck be covered with tarpaulins, leaving all doors open, whose rooms want ventilation, on the orlop and the forecastle-room hatch. But when it is thought proper to ventilate between decks, then the doors of the gang-way into the gunner's floor-room must be shut, and the scuttle in the headmost trunk or pipe upon the gun-deck must be opened; and all the gratings of the middle deck, if the ship be a three-decker, or of the upper deck, if it be a two-deck ship, be laid with tarpaulins; and, if possible, one of the aftermost opened, or the aftermost hatch-way, or a scuttle on purpose, through the deck, as near the stern as possible.

Hales's Treat. part ii. p. 97, &c.

The method of drawing off air from ships by means of fire-pipes, whichsome have preferred to ventilators, was published by Sir Robert Moray in the Phil. Trans. for 1665. These are mettalline pipes, about two inches and a half in diameter, one of which reaches from the fire-place to the well of the ship; the other three branches go to other parts of the ship; the hole-hole and ah-hole being cloed up, the fire is supplied with air through these pipes. The defects of these, compared with ventilators, are especially examined by Dr. Hales, ubi supra, p. 113. See Air-Pipe and Ship.

Mr. Eranmus King proposed to have ventilators worked by the fire-engines in mines; and Mr. Fitzgerald has suggested an improved method of doing this, which he has also illustrated by figures. See Phil. Trans. vol. l. p. 727, &c.

There are various ways of ventilating the air of rooms. Mr. Tidd contrived to admit fresh air into a room, by taking out the middle upper sash-pane of glasses, and fixing in its place a frame-box, with a round hole in its middle, about six or seven inches diameter; in which hole are fixed, behind each other, two or three small twirling windmills, with fans of very thin broad copper-plates, which spread over and cover the circular hole, so as to make the air which enters the room to spread round in thin sheets sideways; and thus not to inconvenience persons, by blowing directly upon them, as it would do if it were not hindered by the fans, which turn on the same axle-tree, each lea from the other.

This method of refreshing rooms is much approved of, and used by many, not only in England, but also in other countries. For other methods of ventilating ships, build-ings, rooms, &c. see Air-Chamber, Bellows, Air-Pipe, Centrifugal Wheel, and Wind-Sail. Vol. XXXVI.

VENTILLA, in Geography, a town of Peru, in the diocese of La Paz; 9 miles S. of La Paz.

VENTININA, a term used by Paracelsus and his followers, to express the art of divining, or knowing by the winds and their courses the good or ill effects of seances.

VENTIS Pontes, in Ancient Geography, a town of Hispania, in Betica, in the vicinity of Carthago.

VENTO, MATTEO, in Biography, a Neapolitan, and disciple of Jomelli. That, however, is not discoverable in his compositions, which are easy and graceful, but have none of the solidity or originality of his master. Arriving in England in 1764, at the inauspicious termination of the reign of the Mingotti and Giardini, at the Opera, he had the good fortune to be engag'd by Gordon and Vincent, the new impresarios, to compose an opera, in which Manzoli was to perform the principal part. The opera which he had to fet was the Demofoonte of Metastasio, of which the airs are natural, graceful, and pleasing; all free from vulgar-ity, but never new or learned. They were, however, in great public and private favour a considerable time. In 1765, on the second arrival of Ehi. he fet Sophonisba, in that easy and graceful style which pleased more generally than what professors would call better music. This drama was repeated more frequently than any other during the seison, and the songs, printed by the elder Wilkie, were long after in favour at concerts and public places, as well as among piping milks and dilettanti.

In 1767, on the arrival of Guarducci, Vento set the opera of "La Conquilla del Mellico," of which the airs, like those of his former operas, were elegant and pleasing. After this he seems to have filled up his whole time in teaching, till the arrival of Gabrieli, in 1776, when he set "La Veilale," in his usual easy style; and when we told him that his airs were somewhat too familiar for the stage, he said, "God forbid I should ever compose difficult music!"

This composer's harpsichord pieces are light and fluid, yet above all things he is a master of the fiddle. There are few in the world who can strike the notes so well as he with the bow, that's why he is not only a master of the fiddle, but also a master of the violin.

VENTO, Matteo, in Biography. See Biagi, Pietro. VENTOSITY, in Medicine. See Flatulence and Tympanites.
VENTOSO, Cape, in Geography, a cape on the N.E. coast of the island of Cabrera, in the Mediterranean. N. lat. 39° 10'. E. long. 2° 53'.

VENTOTIENA, in Geography, an island in the Mediterranean, near the coast of Naples, anciently called Pandataris; according to Dr. William Hamilton, composed of volcanic matter thrown up by fire. It is now, as it seems to have been for ages, used as a place of banishment for criminals of a superior rank. Hither Julia, the daughter of Augustus, was sent, accompanied by her mother Scribonia. Some years the virtuous Agrrippina was also confined here; and Octavia, wife of Nero, and daughter of Claudius, was at the indulgence of Poppea banished and murdered in this island; 17 miles W. of Hitha. N. lat. 40° 53'. E. long. 13° 19'.

VENTURÉ, in Ancient Geography, a town of Italy; to which the Romans sent a colony about the year 331 from the foundation of Rome, according to Diodorus Siculus.

VENTURÉ, in Geography, a town of Hindoostan, in the circuit of Ellore; 7 miles W. of Ellore.

VENTUS Insigniens, in Law, a writ for the search of a widow that she is with child, and thereby holds land from him that is, otherwise, next heir at law. See Jury of Masters.

VENTREVRE, in Geography, a small island in the Atlantic, near the coast of France. N. lat. 47° 28'. W. long. 2° 59'.

VENTRICULUS, in Anatomy, the stomach. See Stomach.

Ventriculi Cordis, the two cavities of the heart, which propel the blood into the arteries; they are the right and left, or pulmonary and aortic. See Heart.

Ventriculi or Ventricles of the Brain, cavities in different parts of its substance. They are the two lateral, right and left, called also tricomes; the 3d, 4th, and 5th, or ventricile of the septum lucidum. See Brain.

Ventriculi Arbor. See Arbor.

Ventriculus Saccentiaritus, in Medicine, a name given by some to the duodenum, when very large. Med. Ef. Edinb. abr. vol. ii. p. 34.

VENTRILLOQUUS, Ventriloquus, compounded of venter, belly, and loquor, I speak, gastrophoia, or engastrimythus, a term applied to persons who speak inwardly; having a peculiar art of forming speech, by drawing the air into the lungs; so that the voice, proceeding out of the thorax, to a voluntary and articulated forms to come from some distance, or in any direction. See Engastrimythus.

Such a person we had formerly in London, a smith by profession, who had the faculty in such perfection, that he could make his voice appear, now, as if it came out of the cellar; and the next minute, as if in an upper room; and nobody present could perceive that he spoke at all. Accordingly, he has frequently called a person first up, then down stairs; then out of doors, then this way, then that, and all this without stirring from his seat, or appearing to speak at all.

We cannot forbear making a few extracts on this curious subject, from a work, published in 1772, entitled "Le Ventriloque," &c. or the Ventriloquy, by M. de la Chapelle, cenór royal at Paris, member of the Academies of Lyons and Rouen, and F.R.S. Some faint traces of the art or faculty of ventriloquism are to be found in the writings of the ancients; but many more are to be discovered there, if we adopt this author's opinion, that the responses of many of the ancient oracles were actually delivered by persons professing this quality, so very capable of being applied to the purport of priestcraft and delusion. The abbé de la Chapelle, having heard many surprising circumstances related concerning one M. St. Gille, a grocer at St. Germain-en-Laye, near Paris, whose powers as a ventriloquist had given occasion to many singular and diverting scenes, formed the resolution of seeing him. Being seated with him on the opposite side of a fire in a parlour on the ground-floor, and very anxiously observing him, the abbé, after half an hour's conversation with M. St. Gille, heard himself called, on a sudden, by his name and title, in a voice that seemed to come from the 10th of a house at a distance; and whilst he was pointing to the house from which the voice had appeared to him to proceed, he was yet more surprised by hearing the words: "It was not from that quarter," apparently in the same kind of voice as before, but which now seemed to issue from under the earth, at one of the corners of the room. In short, this facetious voice played, as it were, every where about him, and seemed to proceed from any quarter, or distance, from which the operator chose to transmit it to him. To the abbé, though conscious that the voice proceeded from the mouth of M. St. Gille, he appeared absolutely mute, while he was exercising this talent; nor could any change in his countenance be discovered. He observed, however, that M. St. Gille prefented only the profile of his face to him, while he was speaking as a ventriloquist. On another occasion, M. St. Gille sought for shelter from a storm in a neighbouring convenent, and finding the community in mourning, and enquiring the cause, he was told, that one of their body much cherished by them had lately died. Some of the religious attended him to the church, and shewing him the tomb of their deceased brother, spoke very feelingly of the bounty honours that had been bestowed on his memory; when suddenly a voice was heard, apparently proceeding from the roof of the choir, lamenting the situation of the defunct in purgatory, and reproaching the brethren with their want of zeal on his account. The whole community being afterwards convened into the church, the voice from the roof renewed its lamentations and reproaches, and the whole convent fell on their faces, and vowed a solemn reparation. Accordingly they first chanted a de profundis in full choir, during the intervals of which the ghoul occasionally expressed the comfort he received from their pious exercises and ejaculations in his behalf. The prior, when this religious service was concluded, entered into a serious conversation with M. St. Gille, and inveighed against the absurd incredulity of our modern sceptics, and pretended philosophers, on the article of ghouls and apparitions; and M. St. Gille found it difficult to convince the fathers that the whole was a judicious deception.

Another instance of his extraordinary powers occurred in presence of a large party, confining of commissaries from the Royal Academy of Sciences at Paris, and other person of the highest quality, together with a certain lady, who was not in the secret, and who was only told, that an aerial spirit had lately established itself in the forest of St. Germain-en-Laye, and that they were assembled to inquire into the reality of the fact. When the party sat down to dinner, the aerial spirit began to address the lady with a voice that seemed to be in the air over their heads; sometimes he spoke to her from the trees around them, or from the surface of the ground at a great distance; and at other times from a considerable depth under her feet. The lady, being thus addressed for more than two hours, was firmly persuaded that this was the voice of an aerial spirit; and it was some time before she was undeceived.

Several other instances of M. St. Gille's talents are related; and the abbé, in the course of his inquiries, was

Informed.
formed, that the baron de Mengen, a German nobleman, possessed this art in a very high degree. He also relates, from Brodeuc, a learned critic in the sixteenth century, one of the singular feats performed by a capital ventriloquist in his time, who was called Louis Brabant, and was valet de chambre to Francis I. Our countryman Dickson speaks of him particularly, in his tract entitled "Delphi Pheniciantes," printed in duodecimo at Oxford, in 1655. Louis had fallen in love with a beautiful and rich heiress, but was rejected by the parents as an unfit match, on account of his low circumstances. However, the father dying, he wifheds to be the widower; and on his first appearance in the house, he hears herself accused in a voice resembling that of her dead husband, and which seemed to proceed from above. "Give my daughter in marriage to Louis Brabant, who is a man of great fortune, and excellent character; I now endure the inexpiable torments of purgatory, for having refused her to him; obey this admonition, and I shall be soon delivered; you will provide a worthy husband for your daughter, and procure everlasting repose to the soul of your poor husband." The dread summons, which had no appearance of proceeding from Louis, whose countenance exhibited no change, and whose lips were close and motionless, was instantly complied with; but the deceiver, in order to mend his finances for the accomplishment of the marriage-contract, applies to one Cornu, an old and rich banker at Lyons, who had accumulated immense wealth by usury and extortion, and was haunted by remorse of conscience. After some conversation on demons and fpeckles, the pains of purgatory, &c. during an interval of silence, a voice is heard like that of the banker's deceased father, complaining of his dreadful situation in purgatory, and calling upon him to rescue him from thence, by putting into the hands of Louis Brabant, then with him, a large sum for the redemption of Christians in slavery with the Turks; threatening him at the same time with eternal damnation, if he did not expiate his own sins. Upon a second interview, in which his ears were falted with the complaints and groans of his father, and of all his deceased relations, imploring him for the love of God, and in the name of every saint in the Calendar, to have mercy on his own soul and others, Cornu obeyed the heavenly voice, and gave Louis ten thousand crowns, with which he returned to Paris, and married his mistress. The mifer, being afterwards undeceived, was so mortified, that he took to his bed and died.

The abbé de la Chapelle takes occasion to account for all the circumstances attending Saul's conference with the Witches of Endor, (which see,) and endeavours to shew that the speech, suppos'd to be addressed to Saul by the ghost of Samuel, actually proceeded from the mouth of the reputed forceress, whom he suppos'd to have been a capital ventriloquist. On these grounds he explains that transfiguration, and reconciles all its circumstances to the relation given of it in Scripture; where, it is to be observed, that Saul is not said to have seen Samuel, but only to have heard a voice, which a ventriloquist can produce and transmit from any quarter, and with any degree of strength whatever. He afterwards brings many inferences to prove, that the ancient oracles principally supported their credit, and derived their influence, from the exercice of this particular art. Many other learned men have given the same account of the witch of Endor. Though they all acknowledge a familiar spirit, yet the Hebrew word שן, and the plural שן, is generally rendered by the LXX ἄνεργον, ventriloquent. Thus it is rendered Isaiah, xix. 3. It appears from Plutarch (De Defect. Orac. tom. ii. p. 444.), Suidas (tom. i. ad voc. ἄνεργος-μύθος, p. 669.), and Josephus (Antiq. lib. xiv. p. 354.), that those who were anciently called ventriloquists had afterwards the name of Pythomæsters, which implies a pretence to divination. Accordingly Πυθός is the word used by the Vulgate version, 1 Sam. xxviii. 7, 8; though not, as Voltaire seems to intimate, in the Hebrew; and, therefore, there is no ground for the conclusion which he draws, viz. that the history was not written till the Jews traded with the Greeks, after the time of Alexander, i.e. for determining the date of a Hebrew book from the use of a word in a Latin translation, made many hundred years after it, and not to be found in the original.

From baron de Mengen's account of himself, and the observations made by M. de la Chapelle in his frequent examinations of M. St. Gilles, it seems that the fictitious voice produced by a ventriloquist does not (as the etymology of the word imports) proceed from the belly, but is formed in the inner parts of the mouth and throat. The art, according to this author, does not depend on a particular structure or organization of these parts, peculiar to a few individuals, and very rarely occurring, but may be acquired by almost any ardent person in attaining it, and determined to persevere in repeated trials. The judgments we form concerning the situation and distance of bodies, by means of the senses mutually assisting and correcting each other, seem to be entirely founded on experience (see Reid's Inquiry into the Human Mind, p. 70, edit. 2d,) and we pass from the sign to the thing signified by it immediately, or at least without any intermediate steps perceptible to ourselves. Hence it follows, that if a man, though in the same room with another, can by any peculiar modification of the organs of speech produce a sound, which in fineness, tone, body, and every other sensible quality, perfectly resembles a sound delivered from the roof of an opposite house, the ear will naturally, without examination, refer it to that situation and distance; the sound which the person hears being only a sign, which from infancy he has been accustomed, by experience, to associate with the idea of a person speaking from a housetop. A deception of this kind is practised withucces on the organ, and other musical instruments; and there are many similar optical deceptions.

Rolandus, in his Agologeton, mentions, that if the mediastrum, which is naturally a single membrane, be divided into two parts, the speech will seem to come out of the breast; so that the by-handlers will fancy the person possessed.

For some facts and observations tending to explain the curious phenomena of ventriloquism by Mr. John Gough, we refer to the Manchester Memoirs, vol. v. part 2. p. 628. London, 1802, in which the ingenious author investigates the method whereby men judge by the ear of the position of sonorous bodies relative to their own persons. This author observes in general, that a sudden change of direction in found, our knowledge of which, as he conceives, does not depend on the impulse in the ear, but on other facts, will be perceived, when the original communication is interrupted, provided there be a sensible echo. This circumstance will be acknowledged by any person who has had occasion to walk along a valley, intercepted with buildings, at the time that a peal of bells was ringing in it. For the sound of the bells, instead of arriving constantly at the ears of a person so situated, in its true direction, is frequently reflected in a short time from two or three different places. These deceptions are in many cases so much diversified by the succeffive interpositions of fresh objects, that the steeple appears, in the hearer's judgment, to perform the part of an expert ventriloquist on a theatre, the extent of which is adapted to its own powers, and not to those of the human
voice. The similarity of effect which connects this phenomenon with ventriloquism convinced the author, whenever he heard it, that what we know to be the cause in one instance is also the cause in the other, viz. that the echo reaches the ear, while the original sound is intercepted by accident in the case of the bells, but by art in the case of the ventriloquist. In order that the cause which gives rise to the amusing tricks of this uncommon talent may be pointed out with the greater clearness, it will be proper to describe certain circumstances that take place in the act of speaking, because the skill of the ventriloquist seems to consist in a peculiar management of them. Articulation is the art of modifying the sound of the larynx, by the assistance of the cavity of the mouth, the tongue, teeth, and lips. The different vibrations, which are excited by the joint operation of the several organs in action, pass along the bones and cartilages, from the parts in motion to the external teguments of the head, face, neck, and chest; from which, a succession of similar vibrations is imparted to the contiguous air, thereby converting the superior moiety of the speaker's body into an extensive field of sounds, the object of general opinion, which supposes the passage of the voice to be confined to the opening of the lips.

When an orator addresses an audience in a lofty and spacious room, his voice is reflected from every point of the apartment, of which all present are made sensible by the confused noise that fills up every pause in his discourse; nevertheless, every one knows the true place of the speaker, because his voice is the prevailing sound at the time. But were it possible to prevent his words from reaching any one of the audience directly, what would then follow? Undoubtedly a complete case of ventriloquism would be the consequence, and the person so circumstanced would transport the orator, in his own mind, to the place of the principal echo, which would perform the part of the prevailing sound at the instant. This he would be obliged to do, because the human judgment is bound, by the dictates of experience, to regard the person as incapable of the voice; and the deception in question would be unavoidable, being produced by the same cause and means of causes which makes a peel of bells, situated in a valley, seem to change place in the opinion of a traveller. It is the business of a ventriloquist to amuse his admirers with tricks resembling the foregoing delusion; and it will be readily granted, that he has a subtle fene, highly corrected by experience, to manage, on which account the judgment must be cheated as well as the ear. This can only be accomplished by making the pulses, constituting his words, strike the heads of his hearers, not in the right lines that join their persons and his. He must, therefore, know how to disguise the true direction of his voice, because the artifice will give him an opportunity to substitute almost any echo he chooses in the place of it. But the superior part of the human body has been already proved to form an extensive field of sound, from every point of which the pulses are repelled, as if they diverged from a common centre. This is the reason why people, who speak in the usual way, cannot conceal the direction of their voices, which in reality fly off towards all points at the same instant. The ventriloquist, therefore, by some means or other, acquires the difficult habit of contracting the field of sound within the compass of his lips, which enables him to confine the real path of his voice to narrow limits. For he, who is master of the art, has nothing to do but to place his mouth obliquely to the company; and to dart his words, if the expedition may be used, against an opposing object, whence they will be reflected immediately, so as to strike the ears of the audience from an unexpected quarter, in consequence of which the reflector will appear to be the speaker. Nature seems to fix no bounds to this kind of deception, only care must be taken not to let the path of the direct pulses pass too near the head of the person who is to be played upon; for, if a line, joining the exhibitor's mouth and the reflecting body, approach one of his ears too nearly, the divergency of the pulses will make him perceive the voice itself, instead of the reverberated sound.

The author has given the following narrative of a ventriloquist, whom he attended in the exercise of his art. His audience was arranged in two opposite lines, corresponding to the two sides of a long narrow room. The benches on which they were seated reached from one end of the place to the middle of it, the other part remaining unoccupied. The facts exhibited by him were the three following: First: he made his voice heard from behind his audience, but it never seemed to proceed from any part of the wall, near the heads of the people present; on the contrary, it was always heard resembling the voice of a child, who seemed to be under the benches. He stood during the time of speaking in a sloping posture, having his mouth turned towards the place from which the sound issued; so that the line, joining his lips and the reflecting object, did not approach the ears of the company. Second: advancing into the vacant part of the room, and turning his back to the audience, he made a variety of noises, that seemed to proceed from an open cupboard which flew directly before him, at the distance of two or three yards. Third: he placed an inverted glass cup on the hands of his hearers, and then imitated the cries of a child confined in it. His method of doing it was this; the upper part of the hearer's arm laid close along his side; then the part below the elbow was kept in a horizontal position, with the hand turned downwards, which was done by the operator himself. After taking these preparatory steps, the man bent his body forwards in a situation which presented the profile of his face nearly to the front of his hearer, whilist his mouth pointed to the cup; in which posture he copied the voice of a confined child so completely, that three positions of the glas were easily distinguished by as many different tones, viz. when he prefixed the mouth of the cup close against the palm, when one edge of it was elevated, and when the vessel was held near the hand, but did not touch it. The second and third instances of ventriloquism afford strong proofs, that this delusive talent is nothing more than the art of subduing an echo for the primary found; for, besides the change perceivable in the direction of the voice, it was found to be blended with a variety of secondary sounds; such as we know by experience are produced, as often as a noize of any kind issues from a cavity.

The method of preventing the vibration of the vocal organs from reaching the external extremities is still wanting, as our author acknowledges, to complete his theory of ventriloquism; and this, he presumes, can only be supplied by an adept in this art.
Thus we say, twelve of the affixes ought to be of the same flux where the demand is made.

In transitory actions, the courts will very often change the venue, or county, in which the cause is to be tried. The statute 6 Ric. II. cap. 2. having ordered all writs to be laid in their proper counties, this, as the judges conceived, empowered them to change the venue, if required, and not to insist rigidly on abating the writ, which practice began in the reign of James I. and this power is deliberately exercised, so as not to cause, but prevent a defect of justice. Therefore the court will not change the venue to any of the four northern counties, previous to the spring circuit; because there the affixes are held only once a year, at the time of the summer circuit. And it will sometimes remove the venue from the proper jurisdiction, (especially of the narrow and limited kind,) upon a juggulion, duly supported, that a fair and impartial trial cannot be had therein. Blackett. Comm. book ii.

VENUS, in Astronomy, one of the inferior planets; denoted by the character ☉.

Venus is easily distinguished by her brightness and whiteness, which exceeds that of all the other planets; and which is so considerable, that, in a dusty place, the projects a sensible shadow. Her place is between the earth and Mercury.

She constantly attends the sun, and never departs from him above 47° 48' or 44° 57'. If S be the sun (Plate XXI. Astronomy, fig. 8.), E the earth, V Venus or Mercury, and E a tangent to the orbit of the planet, then will the angle SEV be the greatest elongation of the planet from the sun; which angle, if the orbits were circles having the sun in their centre, would be found by finding: ES : SV :: rad. : tan. S.E.W. But the orbits are not circular, in consequence of which the angle EVS will not be a right angle, unless the greatest elongation happens when the planet is at one of its apsides. The angle SEV is also subject to an alteration from the variation of S.E. and SV.

The greatest angle SEV happens, when the planet is in its aphasis, and the earth in its perihelion, and the leaves angle SEV, when the planet is in its perihelion, and the earth in its apogee. M. de la Lande has calculated these greatest elongations, and finds them 47° 48' and 44° 57' for Venus, and 28° 20' and 17° 36' for Mercury. If we take the mean of the greatest elongations of Venus, which is 46° 22', it gives the angle VSE = 43° 37'; and as the difference of the daily mean motions of Venus and the earth about the sun is 37', we have 37': 43° 37': 1 day: 70-7 days, the time that would elapse between the greatest elongations and the inferior conjunction, if the motions had been uniform, which will not vary much from the true time.

See Elongation.

To find the position of a planet when stationary. Let S be the sun (fig. 9.), E the earth, P the contemporary position of the planet, X the sphere of the fixed stars, to which we refer the motions of the planets; let E, F, Q, be two indefinitely small arcs described in the same time, and let E, F, Q, produced, meet at L; then it is manifest, that whilst the earth moves from E to F, the planet appears stationary at L; and on account of the immense distance of the fixed stars, E.L., E.Q., may be considered as parallel. Draw S.E. S.F., S.P., and S.Q.; then, as E.P. and E.Q. are parallel, the angle QFS = EFS = P or S = P.S. = F.S. = E.F., and S.P. = S.Q. = F.Q. = S.E. = P.E. = P.S. = P.Q.; thus is, the contemporary variations of the angles E and P are as E.S.F. : P.S.Q., the contemporary variations of the angular velocities of the earth and planet versus (because the angular velocities are inversely as the periodic times, or inversely in the sesquiplicate ratio of the distances) as SP² : SE², or (if SP : SE :: a : 1) as a² : 1. But sin. S.E.P. = sin. S.P.E. being as S.P : S.E., or a : 1, the contemporary variations of these angles will be as their tangents. Hence, if x and y be the sines of the angles S.E.P. and S.P.E., we have x : y :: a : 1, and

\[
\frac{x}{\sqrt{1 - x^2}} : \frac{y}{\sqrt{1 - y^2}} :: a^2 : 1, \text{ whence } x^2 = a^4 - a^2
\]

\[
= a^2 + a + 1, \text{ and } x = \frac{a}{\sqrt{a^2 + a + 1}}, \text{ the sine of the planet's elongation from the sun, when stationary.}
\]

Ex. If P be the earth, and E Venus; and we take the distances of the earth and Venus to be 100000 and 72333, we find x = 0.48264 the sine of 28° 51' 5", the elongation of Venus when stationary, upon the supposition of circular orbits.

For eccentric orbits, the points will depend upon the position of the apsides and places of the bodies at the time.

We may, however, get a very near approximation thus. Find the time when the planet would be stationary, if the orbits were circular, and compute for several days, about that time, the geocentric place of the planet, so that you get two days, on one of which the planet was direct, and on the other retrograde, in which interval it must have been stationary, and the point of time when this happened may be determined by interpolation.

To find the time when a planet is stationary, we must know the time of its opposition, or inferior conjunction. Let m and n be the daily angular velocities of the earth and planet about the sun, and v the angle P.S.E., when the planet is stationary; then m - n, or n - m, is the daily variation of the angle at the sun between the earth and planet, according as it is a superior or inferior planet; hence, m - n, or n - m :: v :: 1 day :: \(\frac{v}{m - n}\), or \(\frac{v}{n - m}\), the time from opposition or conjunction to the stationary points both before and after. Hence, the planet must be stationary twice every synodic revolution.

Ex. Let P be the earth, E Venus; then the angle S.P.E. = 20° 51' 5"; therefore, P.S.E. = 13°; also, n = m = 3°; hence, 37° : 13° :: 1 day : 21 days, the time between the inferior conjunction and stationary positions.

If the elongation be observed when stationary, we may find the distance of the planet from the sun, compared with the earth's distance, supposed to be unity. For \(x^2 = \frac{a^2}{a^2 + a + 1}\); hence, \(a^2 + \frac{x^2}{x^2 - 1} \times a = - \frac{x^2}{x^2 - 1}\)

\(=\) if \(t = \) the tangent of the angle whose sine is \(x\), \(a = t^2 + \frac{1}{t^2} + \sqrt{\frac{1}{t^2} + 1 + \frac{1}{t^2}}\), upon the supposition of circular orbits.

A superior planet is retrograde in opposition, and an inferior planet is retrograde in its inferior conjunction; for let P be the earth (fig. 10.), if a superior planet be in opposition; then, as the velocities are as the inverse square roots of the earth of the orbits, the superior planet moves slower; hence, if E, F, Q, be two indefinitely small contemporaneous arcs, P.E. is less than E.F., and on account of the immense distance of the sphere Z of the fixed stars, E.P. must cut E.P. in some point x between P and z, consequently the planet appears retrograde from m to n. If P be the earth, and E an inferior planet in inferior conjunction, it will appear
Venus.

Pear retrograde from \( v \) to \( w \). These retrograde motions must necessarily continue till the planets become stationary. Hence, a superior planet appears retrograde from its stationary point before opposition to its stationary point after; and an inferior planet, from its stationary point before inferior conjunction to its stationary point after.

When Venus appears well to the fun, that is, from her inferior conjunction to her superior, the risings before him, and is called Phosphorus, or Lucifer, or the Morning star; and when she appears east of the sun, that is, from her superior conjunction to her inferior, the sets after him, or in the evening after her sets, and is called Hesperus, or Vesper, or the Evening star: being each in its turn for two hundred and ninety days.

To delineate the appearance of a planet at any time. Let \( S \) be the fun (fig. 11.), \( E \) the earth, \( V \) Venus, for example; \( aVb \) the plane of illumination perpendicular to \( SV \), \( cVd \) the plane of vision perpendicular to \( E \), and draw \( aVc \) perpendicular to \( c \); then \( eVd \) is the breadth of the visible illuminated part, which is projected by the eye into \( ec \), the vered fine of \( C \) with \( SV \), or \( SVZ \), for \( SV \) is the complement of each. Now the circle terminating the illuminated part of the planet, being seen obliquely, appears to be an ellipse; therefore, if \( cm \) represent the projected hemisphere of Venus next to the earth, \( mn \), \( cd \), two diameters perpendicular to each other, and we take \( ec = eV \) the vered fine of \( SV \), and describe the ellipse \( mn \), then \( ec \) is the axis minor, and \( mVn \) will represent the visible illuminated part, as it appears at the earth; and from the property of the ellipse, this area varies as \( ec \). Hence, the visible illuminated part: the whole disk: the vered fine of \( SV \): diameter.

Hence, Mercury and Venus will have the same phases from their inferior to their superior conjunction, as the moon has from the new to the full; and the same from the superior to the inferior conjunction, as the moon has from the full to the new. Mars will appear gibbous in quadratures, as the angle \( SVZ \) will then differ considerably from the two right angles, and consequently the vered fine will sensibly differ from the diameter. For Jupiter, Saturn, and the Georgian, the angle \( SV \) never differs enough from two right angles to make those planets appear gibbous, so that they always appear full-orbed.

Dr. Halley propounded the following problem: To find the position of Venus when brightest, supposing it's orbit, and that of the earth, to be circles, having the fun in their centre. Draw \( S \) perpendicular to \( E \), and put \( a = SE \), \( b = SV \), \( x = EV \), \( y = Vr \); then \( b - y \) is the vered fine of the angle \( SV \), which vered fine varies as the illuminated part; and as the intensity of light varies inversely as the square of its distance, the quantity of light received at the earth varies as \( \frac{b - y}{x^2} = \frac{b - y}{x^2} \times \frac{y}{x^2} \); but

\[
a^2 = b^2 + x^2 + 2 \times y; \quad \text{hence,} \quad y = \frac{a^2 - b^2 - x^2}{2 \times x^2};
\]

substitute this for \( y \), and we get the quantity of light to be as

\[
\frac{b - a}{x^2} = \frac{b^2 - a^2}{2 \times x^2} = \frac{2 \times b \times x - a^2 + b^2 + x^2}{2 \times x^2} = \text{a maximum};
\]

put the fluxion = 0, and we get \( x = \sqrt{3a^2 + b^2} - 2b \). Now, if \( a = 1 \), \( b = 2.7233 \), as in Dr. Halley’s tables, then \( x = 4.3035 \); hence, the angle \( ESV = 22^\circ 21' \), but the angle \( ESV \), at the time of the planet’s greatest elongation, is \( 43^\circ 40' \); hence, Venus is brightest between its inferior conjunction and its greatest elongation; also, the angle \( SEV = 39^\circ 44' \), the elongation of Venus from the sun at the same time, and \( \angle SV = VSE + VES = 62^2 5' \), the vered fine of which is \( 0.53 \), radius being unity; hence, the visible enlightened part: whole disk: \( 0.53 : 2 \); Venus, therefore, appears a little more than one-fourth illuminated, and answers to the appearance of the moon when five days old. Her diameter here is about 36', and therefore the enlightened part is about 10'.25. At this time, Venus is bright enough to cast a shadow at night. This situation happens about 36 days before and after its inferior conjunction; for, supposing Venus to be in conjunction with the sun and when seen from the fun to depart from the earth at the rate of 37' in 6 days, we have \( 37' = 22° 21' \): 1 day: 36 days near; the time from conjunction till Venus is brightest.

If we apply this to Mercury, \( b = 23.71 \), and \( x = 1.00058 \); hence, the angle \( ESV = 78° 55' \); but the same angle, at the time of the planet’s greatest elongation, is \( 69° 15' \). Hence, Mercury is brightest between its greatest elongation and superior conjunction. Also, the angle \( ESV = 22° 18' \), the elongation of Mercury at that time.

When Venus is brightest, and at the same time at its greatest north latitude, it can then be seen with the naked eye at any time of the day, when it is above the horizon; for when its north latitude is the greatest, it rides highest above the horizon, and therefore is more easily seen, the rays of light having to come through a less part of the atmosphere, the higher the body. This happens once in about eight years, Venus and the earth returning to the same parts of their orbits after that interval of time. Vince’s Elements of Astronomy.

The diameter of Venus is to that of the earth as 11:7 to 10 nearly, her apparent diameter equal to 50', and real diameter equal to 9330 miles; her apparent diameter, when reduced to the mean distance of the earth, is, according to Dr. Herchel, 18°79, and her real diameter a little larger than that of the earth (see Planets); her horizontal parallax about 30'; her distance from the sun is to that of the earth from the sun as 72333 to 100000; and her real distance is 68,914,866 miles; her excentricity is \( 2.5 \) of her mean distance from the sun (see Excentricity); the inclination of her orbit to the plane of the ecliptic \( 13^0 23' 35' \); her periodic course round the fun is performed in two hundred and twenty-four days seventeen hours nearly; and her motion round her own axis in twenty-three hours, or, according to the observations of Bianchi, in twenty-four days eight hours: according to Dr. Herchel, uncertain, but not so slow as twenty-four days. See Diameter, Distance, Excentricity, Node, Parallax, and Period. See also Planets, Planetarium, and Solar System.

Venus, when viewed through a telescope, is rarely seen to shine with a full face, but has phases just like those of the moon; being now gibbous, now horned, &c. and her illuminated part is conflantly turned towards the sun, i.e. it looks towards the east, when Phosphorus; and towards the west, when Hesperus.

These different phases of Venus were first observed by Galileo, who thus fulfilled the prediction of Copernicus: for when this excellent astronomer revived the ancient Pythagorean syllem, affirming, that the earth and planets moved round the sun, it was objected that in such a case the phases of Venus should reembrace those of the moon; to which Copernicus replied, that some time or other that resemblance would be found out. Galileo sent an account of the first discovery of these phases in a letter, written from Florence in 1611, to William de Medici, the duke of Tuscany’s ambaassador at Paris; defering him to communicate it
it to Kepler. The letter is extant in the preface to Kepler's Dioptrics, and a translation of it may be seen in Smith's Optics, p. 416.

Having recited the observations which he had made, he adds, "we have hence the most certain, undeniable evidence and demonstration of two grand questions, which to this day have been doubtful and disputed among the greatest masters of reason in the world. One is, that the planets in their own nature are opaque bodies, contributing to Mercury what we have seen in Venus; and the other is, that Venus necessarily moves round the sun, as also Mercury, and the other planets; a thing well believed indeed by Pythagoras, Copernicus, Kepler, and myself, but not yet proved, as now, by ocular inspection upon Venus." He concludes with explaining the cypher that had been sent, in the following words: "Hec immatura a me frustra leguntur, i.e. Cynthiae figuras emulatur mater amorum, or, Venus imitates the phases of the moon."

M. Maraldi made several observations on Venus in 1729, but could perceive no spot; and therefore, these observed by Bianchinii must either have disappeared, or the air at Paris was not so clear as at Rome.

Martin Folkes, eq. former president of the Royal Society, spoke of Bianchinii with respect, as too accurate to make any mistakes in astronomical observations, and too honest to publish any thing that was not exactly agreeable to truth. See Nature of the Planets.

Sometimes Venus is seen in the disc of the sun, in form of a dark round spot. This happens when the earth is about her nodes at the time of her inferior conjunction. These appearances, called transits, happen but seldom. We have had two in the last century, viz. one in June 1761, and another in June 1769. The next will not occur before the year 1784. See Parallax.

The effect of the parallax being determined, for computing which Dr. Maskelyne proposed a new method in relation to the transit of Venus in 1769, the transit affords a very ready method of finding the difference of the longitudes of two places where the same observations are made. For compute the effect of parallax in time, and reduce the observations at each place to the time, if seen from the centre of the earth, and the difference of the times is the difference of the longitudes. From the mean of sixty-three results from the transits of Mercury, Mr. Short found the difference of the meridians of Greenwich and Paris to be 9° 15'; and from the transit of Venus in 1761, to be 9° 10' in time.

Except such transits as these, Venus exhibits the same appearances to us regularly every eight years; her conjunctions, elongations, and times of rising and setting, being very nearly the same, on the same days, as before.

In 1672 and 1686, Caffini, with a telescope of 34 feet, thought he saw a satellite moving round this planet, and distant from it about three-fifths of Venus's diameter. It had the same phases as Venus, but without any well-defined form; and its diameter scarcely exceeded one-fourth of that of Venus. Dr. Gregory (Ar. lib. vi. prop. 3.) thinks it more than probable that this was a satellite; and supposes the reason why it is not usually seen, to be the insufficiency of its surface to reflect the rays of the sun's light; as is the case of the spots in the moon; of which, if the whole disc of the moon were composed, he thinks, that planet could not be seen as far as to Venus.

Mr. Short, in 1740, with a reflecting telescope of 15 inches focus, perceived a small star near Venus; with another telescope of the same focus, magnifying fifty or sixty times, and fitted with a micrometer, he found its distance from Venus about 10°; with a magnifying power of 240, he observed the star always the same phases with Venus; its diameter seemed to be about one-third, or somewhat less, of the diameter of Venus; its light not so bright and vivid, but exceeding sharp and well defined. He viewed it for the space of an hour, but never had the good fortune to see it after the first morning. Phil. Trans. N. 359. p. 645, or Martyn's Abr. vol. viii. p. 208.

M. Montaigne, of Limoges in France, we are told in the Encyclopédie, art. Venus, preparing for observing the transit of 1761, discovered in the preceding May a small star near the distance of 26 from Venus, and its diameter was about one-fourth of the planet. He made other observations for several days, which were communicated to M. Boudin, who read two memoirs on the subject to the Royal Academy of Sciences, in which he endeavoured to state the elements of the orbit of this satellite; but it is to be considered, that Montaigne's telescope had no micrometer, and that his distances must be very vague and uncertain. If Venus has a satellite, it must, according to Dr. Herschel, be less in appearance than a star of the eighth or ninth magnitude. Phil. Trans. for 1755.

After all, it must be acknowledged, that Venus may have a satellite, though it is difficult for us to see it. Its enlightened side can never be fully turned towards us, but when Venus is beyond the sun; in which case, Venus appears little bigger than an ordinary star, and, therefore, her satellite may be too small to be perceived at such a distance. Whether it is between us and the sun, her full moon has her dark side turned towards us; and when Venus is at her greatest elongation, we have but one half of the enlightened side of her full moon towards us, and even then it may be too far distant to be seen by us. But it was presumed, that the two transits of 1761 and 1769, would afford opportunity for determining this point; and yet we find that, although many observers directed their attention to this object, no satellite was seen in the sun's disc; and, therefore, it is reasonable to conclude, that Venus has no satellite.

The phenomena of Venus evidently show the falsity of the Ptolemaic system: for that system supposes, that Venus's orb, or heaven, includes the earth, passing between the sun and Mercury. And yet all our observations agree, that Venus is sometimes on this side of the earth, and sometimes on the other; nor did ever any body for the earth between Venus and the sun; which yet must frequently happen, if Venus revolved round the earth in an heaven below the sun.

Dr. Desaguliers contrived a planetarium to represent the phenomena of Venus, according to the discoveries of Bianchinii; as did also Mr. Ferguson an orrery for the same purpose. The principal properties of these machines are the following: that the angle of the axis of the globe representing Venus makes, with the ecliptic, an angle of 15°; that the tropics are 75° from the equator; that the tropics are 15° from the equator; that the plane of a polar horizon for the longest day cuts the plane of the equator at an angle of 15°; that the sun's greatest declination is 55°; that there are but 93 days in every revolution round the sun; and that to bring the days to an even reckoning, every fourth year must be a leap year, which, taking in the four quarters of a revolution, will make the leap year in Venus count of ten of her days, equal to 24 months of our time; and that the long day for the north pole will contain 43 apparent diurnal revolutions of the sun. For a detail and illustration of the phenomena resulting from these properties, see Desaguliers's Exp. Phil. vol. i. p. 552, &c. Phil. Trans. vol. xvi. p. 127, &c. Ferguson's Alman. p. 8, &c. For the history and account of various instruments of this kind, see Observ. and Planetarium.
### Table I. — Epochs of the Mean Longitude of Venus.

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### Table II. — Mean Motion of Venus for Years.

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**Table V.** — Equation of the Orbit of Venus for 1780.

**Argument. Mean Anomaly of Venus.**

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The greatest Equation diminishes 25" in 100 Years. The others are proportional at the Rate of 0°.5 for a Minute.
Table VI. — Logarithms of the Distance of Venus from the Sun for 1780.

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This equation of the distance arises from the diminution of the equation of Venus. It changes its sign for any time before 1780.
### Table VII. — Heliocentric Latitude of Venus, with the Reduction to the Ecliptic.

**Argument. The Longitude of Venus — that of the Node.**

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Venus.

Explanation of the Tables.—Table I. contains the epochs of the mean longitude of the aphelion and node. Table II. contains the mean motions of the same, for years. Table III. contains their mean motions for days. Table IV. contains their mean motions for hours, minutes, and seconds. Table V. contains the equation of the orbit for the year 1780; but this equation diminishes 25" in 100 years. Table VI. contains the logarithm of the distance of Venus from the Sun, for the year 1780, with the corrections for 100 years, owing to a change of the eccentricity. Table VII. contains the heliocentric latitude of Venus, the reduction in longitude to the ecliptic, and the reduction of the logarithm of the distance, in order to get the curvate distance from the Sun.

The greatest equation (Table V.) of the orbit is 47' 20", and this diminishes at the rate of 25" in 100 years; that is, the diminution for every minute of the equation is very nearly 0".5; we shall, therefore, take the secular diminution at the rate of 0".5 for every minute of the equation: thus, if the equation be 16', the diminution is 4" for 100 years; and for any other number of years, the diminution is in proportion. For any time before 1780, this correction must be added to the equation.

In Table VI. there is a small table for the correction of the logarithms of the distance of Venus from the Sun, for 100 years; entering it with the mean anomaly of Venus, and applying the correction according to the sign, for any time after 1780; but with a contrary sign, before 1780.

To find the heliocentric Latitude and Longitude of Venus, and the Logarithm of her Distance from the Sun.—From Table I. take out the epochs of the mean longitude, the aphelion and node, for the given year; and place them in a horizontal line. But if the given year be not found in that Table, take the nearest year preceding the given year, as an epoch, and take out as before; under which (Table II.) place the mean motion in longitude, of the aphelion and node, answering to the number of years elapsed since the epoch, to the given year.

Under these, write down (Table III.) the mean motions of the fame, for the given day of the month.

Under these, write down (Table IV.) the mean motions of the fame, for the given hours, minutes, and seconds.

Add together the numbers in the several columns, regarding 12 S. or any multiple thereof, if they occur, and you get the mean longitude, places of the aphelion and node, for the given time.

Subtract the longitude of the aphelion from the mean longitude, and the remainder is the mean anomaly.

With the mean anomaly enter Table V., and take out the equation of the orbit with its proper sign, making proportion for the minutes and seconds, if there be any. But this requires a correction, at the rate of 0".5 for every minute of the equation for 100 years; and for any other time, the correction will be in proportion; to be subtracted after 1780, and added before that time.

Apply the equation with its proper sign to the mean longitude, and you get the longitude on the orbit, from the mean equinox.

From the longitude of Venus in her orbit, subtract the longitude of the node; and you have the argument, called the Argument of Latitude.

To the longitude on the orbit, apply the reduction (Table VII.) with its proper sign, and you have the longitude upon the ecliptic, from the mean equinox.

To the longitude thus found, apply the nutation with its proper sign, and you get the true longitude of Venus on the ecliptic, from the true equinox.

With the argument of latitude enter Table VII., and take out the latitude, making proportion for the minutes and seconds, if necessary; and this is the true heliocentric latitude of Venus.

With the mean anomaly of Venus enter Table VI., and take out the logarithm of her distance from the Sun, making proportion for the minutes and seconds, if necessary. But this must be corrected by the small Table, to be entered with the mean anomaly, and you get the correction for 100 years; and for any other time, the correction will be in proportion, to be applied with a contrary sign, before 1780.

With the argument of latitude enter Table VII., and take out the reduction in the column under Sub. Log., making proportion for the minutes and seconds, if necessary; and subtract it from the logarithm of the distance last found, and you have the logarithm of the curvate distance.

Ex.—On June 23, 1690, new style, at 1° 14' 11" mean time at Greenwich; to find the heliocentric latitude and longitude of Venus, and the logarithm of her distance from the Sun.

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<td>68 9 52</td>
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<td>Mean Anomaly</td>
<td>Arg. of Latitude</td>
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<td>Log. diff. - 9.856347</td>
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<td>Nutation</td>
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<td>Reduction - - 588</td>
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<tr>
<td>True long. on ecl.</td>
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<td>Log. curt. diff. 9.85759</td>
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VENUS.

Venous, in Chemistry, is used for the metal Copper; which fee. Its character is $\frac{2}{3}$; which, say the adepts, express it to be gold, only joined with some corrosive and arilenchial menstruum; which, removed, copper would be gold.

Venus is universally allowed, by the chemists, &c. to be one of the most powerful medicines in nature; and sometimes, upon having been compos’d the famous Butler’s stone, which cured maff of diseases by only licking it. Of this is compos’d that noble remedy of Van Helmont, viz. the sulphur of vitriol, or ens vitrioli, fixed by calcination and colobation. Of the ens vitrioli of Venus is likewise compos’d Mr. Boyle’s arcanum, the colochar vitrioli.

It is certain copper is a powerful emetic, and an antidote against poisons; for it is no sooner taken, than it exerts its force: whereas other vomitories lie a good while in the stomatch; but one single grain of dust of Venus immediately vomits. Hence syrups, that have flow’d over night in copper vessels, create a vomiting.

However, pure, copper, in its metallic state, or calcined by fire, appears to be indiffusible, and of no considerable effect, in the bodies of animals; but diffus’d in the nitrous or marine acids, and crystallized or excrusted by heat, it proves a strong caustic. Preparations of this kind, though formerly used, are now laid aside. Copper, combined with the vitriolic acid, or with vegetable acids, or corroded by the air, acts outwardly, as an efficacious detergent and a gentle echarotic, and internally as a virulent emetic and cathartic. Some have ventured on small doses, as quick emetics for expelling poisons; but the end may be obtained by lefs dangerous means.

It has been also reckoned an excellent medicine in chronic cafes: hence a famous physician is recorded to have cured Charles V. of a dropsy by the use of copper.

A faturated solution of the metal in volatile spirits is recommended by Boerhaave in disorders proceeding from an acid, weak, cold, phlegmatic cafe. He says, that if three drops be taken in the morning in a glafs of mead, and the dose doubled every day, to twenty-four drops, it proves attenuating, warming, and diuretic; that by this medicine he once cured a confirmed afces; though in other similiar cafes it failed; that it is the only preparation of copper which does not prove emetic; and that it may be tried with safety. Dr. Lewis, however, is of opinion, that in considerable doses it would exert the same virulent operation with the other soluble preparations or folutions of copper. A solid preparation of this kind, made by rubbing together in a glafs mortar two parts of blue vitriol, and three of the volatile salt, procured from sal ammoniac, till all effervescence has ceased, and then gently drying the concrete, is ordered in the last Edinburgh Pharmacopoeia, under the name of cuprum ammoniacum. It has frequently been given with success in epileptic and convulsive disorders. Lewis. See Sulphate of Copper. See also Sapphina Aqua, and Aqua Cupri Ammoniata.

Venus is diffoluble by all the salts known. Both acid, alkaline, and nitrous; may, even by water and air, considered as they contain salt.

It is from this common reception of all menstruums, that copper is called Venus, q. d. meretric pubes, a common prostitute: though others take the denomination to have been occasion’d by its turning of a sea-green colour, when diffolved by acid. It must be given internally, with great caution.

VENUS, CRYSTALS of. See CRYSTAL, VERDECRAINE, and COPPER.

VENUS, Spirit of. See ACETIC ACID.

Vol. XXXVI.
Celestis, that is to say, the planet of that name; and Astarte, the wife of Adonis, whose worship was intermingled with that of the planet, or, which comes to the same, that Syrian Venus, the fourth in Cicero, so celebrated in antiquity. The Phenicians, in conducting their colonies into the islands of the Mediterranean sea, and into Greece, introduced thither the worship of this goddess. They stopped first in the island of Cyprus, which lies next the coasts of Syria; and there the worship of this goddess was generally received. From thence they went to Cythera, an isle near the continent of Greece; there the Greeks began to traffic with them, and to get some knowledge of their religion; and this is the reason of their giving out, that it was near this island the goddess was seen for the first time, because it was there they came to hear of her first. A very convincing proof that the worship of Venus was established in that island, before it passed into the continent, is, that the temple of Cythera was accounted the most ancient of any that Venus had in Greece, as Pausanias remarks.

From Cythera the worship of this goddess passed into Greece; and as those who had brought it thither came by sea, the Greeks, who endeavoured to give every thing a marvellous dress, say she had sprung from the sea, and gave her the name of Aphrodite, a word which imports foam. This, no doubt, is the true explication of this fiction, and it is needless to search into it for any other mystery. The Greek poets embellished this fable according to their own fancy. Having heard of Astarte’s passionate love of Adonis, they took care to apply this circumstance to their Venus: and, moreover, they considered Love as the son of this goddess, and gave her the three Graces for her daughters. In fine, they formed that love-fable, of which the ideas have served, in after-ages, to embellish the works of their brother-poets. A young virgin rides out of the foam of the sea, and appears upon a shell-fish; she sits down on mount Cythera, where the flowers spring up under her fest; the Hours, charged with the care of her education, conducted her to heaven, where all the gods, charmed with her beauty, make love to her; she matches with Vulcan, the most deformed of all; the disgraces herself her gallantries with Mars and Mercury; by the one she has Cupid, and by the other Anti-Cupid; Bacchus is her ‘quire; in fine, she presides over marriages and gallantry; and, therefore, has a mysterious girdle given her, called the ceius of Venus, which not only makes herself amiable, but has virtue to kindle the flame of an extinguished passion, &c.

This was not all, they foisted into the history of the goddess Venus, most of the celebrated pieces of gallery. Some beauty being surprised in an intrigue, gave rise to the adultery of Mars with Venus, and to the stratagem of Vulcan. Venus, whatever might be the dishonourable ideas entertained concerning her, was nevertheless regarded as one of the principal deities; and as the patronized scandalous passions, she was worshipped in a manner worthy of her. Her temples, open to prostitution, taught the corrupt world, that in order to pay due honour to the goddess of love, they were to have no regard to the rules of modesty. The virgins prostituted themselves publicly in her temples, and there the married women shewed as little reserve. Amathus, Cythera, Gnidos, Paphos, Icalia, and the other places especially consecrated to this goddess, were disfigured by the most infamous abuses.

Farther, as there were several Veneus, her worship was not everywhere the same. In some places they only burned incense upon her altar; elsewhere they made her an offering of sweet odours, one ingredient of which was the fleth of a sparrow; in other places they sacrificed to her a white goat. The women had also a custom of confecting their hair to this goddess; and the trefoles of Berenice, which she had vowed to Venus, were placed among the fans.

Among the flowers, the rose was particularly consecrated to this goddess, because this flower had been tinged with the blood of Adonis, whom one of its thorns had wounded, which changed it into red from white, which it was before this adventure. The myrtle, too, was dedicated to her, because it commonly grows upon the borders of the water where this goddess was born. The swans and sparrows were particularly consecrated to her, but above all the pigeons, from the fable which lets forth, that while this goddess was one day playing with Cupid, the little god would needs wager to gather more flowers than thee, and a nymph named Perilerta, having alighted the gods, she won the wager, with which Cupid was so provoked, that he transformed the nymph into a pigeon. As there were several persons who bore the name of Venus, her worship was not every where the same.

Venus was known under several appellations and characters; derived either from the places where she was worshipped, or from some particular circumstances that had given rise to her worship. Accordingly we read of the Venus Amathusa, Amica, Acantha, Apatira or Deidrafo, Aphroditia, Archytis, Argynnis, Armata, Aurea, Barbata, Bebissi, Calypgia, Calus, Chacina, Colus, Cyprus, Cytheria, Elephanta, Elypo, Ergoria, Etaira, Gentixis, Hortenijis, Impoja, Lilibia, Marina, Nephe, Paphis, Praxis, Riden, Verticordia, Vitrix, Zeryntia, &c &c.

Praxiteles executed two statues of Venus, one clothed, bought by the inhabitants of Cos, and another naked, which he sold to the Cnidians. See ANADUOMEN, and VENUS de Medicis.

The Venus of M. Maffei seems to have been formed in conformity to the well-known passage of Terence,

"Sine Cerere & Baccho friget Venus."

The goddess in this statue is accompanied with two Cupids, and crowned with ears of corn, holding a thyrus, wrapped about with leaves and clusters of grapes; and as she carries in her hand three arrows, she seems to teach us that her arrows fly more unerring when Ceres and Bacchus concur. Pausanias informs us that he had seen in Elis a fine statue of Venus Urania or Celestial, whose feet rested upon the back of a tortoise; and another of terrestrial Venus, placing her feet upon a he-goat.

We have on medals the Venus Urania, or Celestis, with a star or sun, or celestial globe in her hand; and the Venus Paphia, almost naked, leaning on a column, with a helmet and the arms of Mars in her hands, bearing an inscription Veneri Vitricis, or Veneri Genetricis. She is sometimes seen armed, sometimes resting upon a dolphin, holding a pigeon in her lap, or with Adonis, accompanied by his dogs, or with Cupid and the three Graces; but more frequently rising from the sea, seated upon a shell borne by two Tritons, or upon a chariot drawn by two sea-horses, or by a female sea-goat, or rather he-goat; for, according to Pausanias, her statue, made by the famous statuary Scopas, was upon that animal, and in that case she is accompanied by Nereids and Cupids, mounted upon dolphins, one of the Nereids holding a lyre in her hand, and mounted upon a sea-centaur; but more frequently her chariot is drawn by swans or pigeons, birds consecrated to her. Sometimes she
she appears herself supported by a Triton, having a buckler in her hand, on which is represented a head; sometimes mounted upon sea-horses, she seems to skim over the waves of the sea, her head being covered with a veil which swells in the wind, with Cupid swimming at her side. An oak at the foot of the goddesfs seems to represent the Venus Pelagia or Marine; and the figure which she holds in her hand, a cornucopia, expresses the blemblings produced by maritime commerce. There is also a picture of the Venus Deidiofa in the Barberini palace at Rome, which is one of the finest-coloured pictures that is left us by the ancients; the hair of whose head may be compared with Guido's, and the colouring of the flesh reminds us of Titian. Part of this picture is lost, and part restored by Carlo Marat. Venus is described by Statius (Lib. i. 1. v. 56) much in the same manner as she is represented in the Barberini picture.

We shall only add, that Venus is sometimes described by the poets of the third age under the character of the goddesfs of jealously, rather than as the goddesfs of love; in which Valerius Flaccus (Argon. ii. v. 106.) and Statius (Theb. v. v. 69.) have drawn two very terrible pictures of her.

Spence's Polymetis, p. 74.

Venus de Medicis, in the history of Ancient Sculpture, a famous statue of white marble, about five feet high, brought from the Medicis palace at Rome to Florence, by order of duke Cosimo III., and now standing in the great duke's palace. The hips, legs, and arms, were broken off by the removal of this statue; but they have been rejoined with an art, that renders their former separation imperceptible. The inscription on the base intimates that this was the work of Cleomenes, an Athenian, the son of Apollodorus; the pedastal is modern; the statue seems to bear a little forwards; the right knee advances a little; the left-hand is placed before that part which distinguishes the sexes, and the right across her breasts; yet without touching the body. The head inclines a little to the left shoulder; so that her face seems to be turned away a little from the observer: and from this circumstance some have taken occasion to remark, that the hair of the head of this Venus expresses three different passions; as you first approach her, you perceive avenion or denial in her look; as you advance a step or two nearer, the fhow complaisance; and one step more to the right, it is said, turns into a little infectious and infulint fyllae: but Mr. Spence does not allow that this account is justified by the statue itself.

The attitude of the Venus de Medicis is particularly graceful; that attitude may be deferred in two verses of Ovid, Art. Am. v. 614.

"Ipfa Venus pubem, quiesque velamina ponit,
Protegitur levä femi-reducâ manu.
"

The bloom of youth, the pleasing softness of her look, and her beauty and modesty, seem to rival each other in the charms of her countenance. Her person is somewhat plump, and the flesh is fo admirably executed, that it seems fo soft as if it would yield to the touch. Time has given to the white marble a yellowish hue, though it is almost transparent; her hair is brown, which may be no more than the faded gilding not unusual among the ancients. The head, which is said to be too small in proportion to the other parts, is inscribed by fome not to have been executed by the fame artift who made the body: this will ever be the standard of female beauty and softness; the breasts are also the fmall that can be conceived, fmall, diftinct, and delicate, muffgleging an idea of softness, which no copies can imitate, and alo of firmnefs: from the breasts, her shape begins to diminish gradually down to her wait; but with an exquisifte fineness of shape, the Venus of Medicis has what the Romans call corpus solidum, and the French the enboupoint: and her wait in particular is not represented as flimed by art, but as exactly proportioned by nature to all the other parts of her body. There is also a tendernefs and elegance in every other part of her form: her legs are neat and fender: the small of them is finely rounded, and her feet are little, white and pretty: fo that the poiffeles all thofe leffer beauties which the poets have marked out in the female make; the testes fure (Hor. lib. ii. od. iv. ver. 21.), and the pes candidus (Id. lib. iv. od. i. v. 27.), and exiguis (Ovid. Am. lib. ii. el. iii. ver. 7.) and one may well fay of this statue, what one of the perfonf in Plautus's Epidicus (act v. fc. 11.) fays of a complete beauty:

"Ab unguiculo ad capillum summum, eft feluviifima."

Though the Venus of Medicis has not escaped fexure, with regard to the smallnefs of her head and hips, the large-ness of the nofe, the depth of the partition along the ver- tebrae of the back, the length of the fingers, which, excepting the little finger on the left-hand, are without joints; and though, in comparing the parts separate, as the head, nofe, &c. of this statue, with thofe of others, the familiar parts might be found even of superior workmanship; yet for such a combination of beauties, the delicacy of shape and attitude, and symmetry of the whole, it is universally allowed that the world doth not afford its equal. This incomparable statue flonds between two others, which in any other place would be esteemed admirable pieces: that on the right of the Venus de Medicis is twice as big, with the golden apple in her hand, and is called Venus Virile; the other, by Hercules Ferrata, is distinguished by the name of Venus Urania. Spence's Polymetis, p. 6, &c. Keyler's Travels, vol. i. p. 434.

Venus, in Heraldry, is used for the colour vert.

Venus, in the Linnean System of Natural History, a genus of the Telleaceae order of worms. See CONCHOLGY.

Venus, Mount of, Mona Veneris, among Anatamofis, is a little hairy protuberance in the middle of the pubes of women; occasioned by the collection of fat under the skin in that place.

Among choromancers, the mount of Venus is a little eminence in the palm of the hand, at the root of one of the fingers.

Venus's Comb, in Botany. See SCANDIX.

Venus's Fly-Trap. See Dionex.

Venus's Looking-Glass. See Campanula and Speculum Venerei.

Venus's Name-Wort. See Cotyledon, n. 19, and Cy- noglossum, n. 18.

Venus, Cape, in Geography, a cape on the coast of Ota- rieh. N. lat. 17° 29'. W. long. 149° 36'.

VENUSIA, VENOSA, in Ancient Geography, a town of Italy, in Apulia, near mount Vultur, watered by a small river called Aufidus. It is said to have been denominated Aphrodita. It became a Roman colony in 400 B.C. It was formerly a magnificent city, but its baths, theatres, and temples have been destroyed. It was the birth-place of Horace.

VENUSTI, MARCELLO, in Biography. This painter was born at Mantua in 1515, and was a pupil of Pierino del Vaga. He is however far better known as the painter of several designs of Michael Angelo, (to which he gave a colour unknown to that great compositor,) than by any ori-
ginal works of his own. The cardinal Farnese engaged him to copy the great work of the Laft Judgment in the Capella Scitina, upon a small scale, which he accomplished very much to the satisfaction of M. Angelo, who in consequence engaged him to paint an altar-piece for the Capella de Ceti in the church of La Pace, from a design of his own, of the Annunciation. There are several pictures in England, which are called Michael Angelo's, that have every appearance of being painted by Venuti. Some works of his own are spoken of with respect, particularly the Martyrdom of St. Catherine, in the church of S. Agostino; and St. John in the Wilderness, in St. Catherine alli Fumari. He died in 1576, aged eighty-one.

VENZONE, in Geography, a town of Italy, in the country of Friuli; on the Tajamari; 18 miles W.N.W. of Friuli.

VEPILIUM, or VEPILLUM, in Ancient Geography, a town of Africa, S. of Carthage, situated two leagues S.E. of Alama, which has still some villages of the Romans.

VEPRAECELUM, in Botany, the thirty-thirst natural order among the Fragments of Linnaeus, named from vepera, a briar or bramble, because the plants which compose this order are pliant shrubs, of humble growth. The genera mentioned at the end of the Genera Plantarum are Dais, Quisqualis, Diosa, Daphne, Cudnora, Lachnea, Pafferia, Stellera, and Thefium; to which Linnaeus has added in manuscript, Struthiola, Santalum (with a doubt whether it should not rather be referred to the Biconora), and Schranthus. No remark occurs, in Gikeke's publication of the Prelections of Linnaeus, on this order. As far as concerns the eight first named of the above genera, with Struthiola, it is precisely analogous to Juffieus's Thymellæa; see that article. Thesium and Santalum belong to Mr. Brown's Santalaceæ, an order extracted from the Onagraceæ and Elagni of Juffieu, which the reader will find in its proper place. Schranthus seems naturally one of the Caryophyllicæ, notwithstanding the infonation of its flamins into the tulip, which obliged Juffieu to range it with his Portulaceæ. Perhaps this decision may partly be supported by the habit, and the aspect of the flower.

VEPRIS, Juss. 371, a name given by Commerson to what is now called Scopolia; see that article.

VER-PUCERON, in Natural History, a name given to a kind of insects which are food of eating the puceron, and destroy them in vast numbers.

They are thus called, as the ant-eater is, formica-leo, from their destroying great numbers of them.

These ver-pucerons are a sort of worms produced from the eggs of flies, and are of two principal kinds; the one having legs, the other none.

When we observe the vast number of young produced by every puceron, and the quick progress they make in their multiplication, we are apt to wonder, that every plant and tree in the world are not covered with them; but on the contrary, when we observe the devastation these devours make among them, we are apt to wonder how any of them escape at all, to perpetuate the species. These worms indeed seem created for no other purpose but to destroy them; and this they do in so violent a manner as is scarcely to be conceived. As the flies of many kinds lay their eggs on meat and other substances, which they know will afford food for the young ones, when hatched from them; so the parents of these worms lay their eggs on the branches and leaves of trees loaded with pucerons, on which they know they will feed. The worms produced from them are devourers from the very instant they are hatched, and find themselves placed in the midst of prey, being every way surrounded by a nation of creatures which are their proper food, and which are furnished with no weapons, either offensive or defensive, and which never so much as attempt to fly from them, but seem wholly ignorant of their danger, till seized upon by the devourers. Reaumur's Hist. of Insects, vol. vi. p. 111.

The flies, which are produced from these worms, are all of the two-winged kind; but there are several different species of them; the generality of them resemble wasps, and have a very flat body. Goedart, who has described some of these flies, was surprized to see them very small when first produced from the chrysalis, yet growing very large in a quarter of an hour's time, and that without taking any nourishment; but this was only owing to their several parts having been squeezed while in the chrysalis, and expanding themselves when they were at liberty from the confinement. These are the changes of this kind of lea-puceron; but the other devourers of these creatures, which has fix legs, is of a different kind, and indeed is in itself reducible to several species, some of these fix-legged worms becoming four-winged flies, and others a kind of beetles. These, from their near resemblance to the fornicato, are by Reaumur disagreeably called puceron-lions.

Ver-Polye, a name given by Reaumur, and some other authors, to a species of water-worm, by no means to be confounded with the creature called simply the polype, and which is so famous for its reproduction of parts cut off, and for many other singular properties.

This ver-polpe is a species of water-worm, produced from the egg of a tipula, and had this name given it from some remarkable productions, placed at the anterior and posterior parts of the body, which are supposed to have some analogy with the parts of the sea-fish called the polypus. These worms are found in muddy ditches, usually either crawling upon, or buried in the mud. Reaumur's Hist. of Insects, vol. ix. p. 49.

VERA, in Ancient Geography, a town of Asia, in Media, on an eminence, and strong by its situation.—Alfo, the name of a river of Gaul.

VERA, in Geography, a town of Spain, in Navarre; 25 miles N. of Pamplona.—Alfo, a town of Spain, in the province of Grenada; 34 miles N.E. of Almeria. N. lat. 37° 8'. W. long. 2° 4'.—Alfo, a river of European Turkey, which runs into the gulf of Salonick, near the mouth of the Vardar.

Vera Billia. See Billa.

VERABADURGAM, in Geography, a town of Hindooftan, in Mylore; 8 miles W.S.W. of Caverpatam.

VERACINI, ANTONIO, in Biography, uncle and master to Francesco Maria Veracini, the celebrated performer on the violin, published at Florence, in 1629, ten fanatas, the usual number, till Corelli's time; and afterwards, "Sonate da Chiesa," two sets; but this author not being possessed of the knowledge, hand, or caprice of his nephew, his works are now not sufficiently interesting to merit further notice, particularly as there was nothing marked or original in his style; the harmony indeed was correct; but "much may be right, yet much be wanting."

VERACINI, FRANCESCO MARIA, a native of Florence, and contemporary with Tartini, who were regarded as the greatest masters of the violin that had ever appeared; nor were their abilities confined merely to the excellence of their performance, they extended to composition, in which they both manifested great genius and science. But whatever resemblance there may have been in the professional skill of these two masters, it was impossible for any two men to be more dissimilar,
Beating at Lucca at the time of La Felle della Croce, which is celebrated every year on the 14th of September, when it is customary for the principal professors of Italy, vocal and instrumental, to meet, Veracini entered his name for a solo concerto; but when he went into the choir, in order to take possession of the principal place, he found it already occupied by Padre Girolamo Laurenti, of Bologna; who, not knowing him, as he had been some years in Poland, alleged him where he was going? Veracini answered to the place of first violin. Laurenti then told him, that he had been always engaged to fill that post himself; but that if he wished to play a concerto, either at vespers, or during high masses, he should have a place assigned him. Veracini, with great contempt and indignation, turned his back on him, and went to the lowest place in the orchestra. In the act or part of the service in which Laurenti performed his concerto, Veracini did not play a note, but listened with great attention. And being called upon, would not play a concerto, but defined the hoary old father would let him play a solo at the bottom of the choir, defining Lanzetti, the violincellist of Turin, to accompany him; when he played in such a manner as to extort an equirel in the public church. And when he was about to make a recitativo, he turned to Laurenti, and called out: "Cofi fiuona per fare il primo violino: " ‘this is the way to play the first fiddle.’ Many silly stories of this kind are handed about Italy concerning the caprice and arrogance of this performer, who was usually qualified with the title of Capo fazzo. Veracini would give lefions to no one except a nephew, who died young. The only master he had himself in his youth, was his uncle, Antonio Veracini, of Florence; but travelling all over Europe he formed a style of playing peculiar to himself. Besides being in the service of the king of Poland, he was a considerable time at different courts of Germany, and twice in England, where, during the time of Farinelli, he composed several operas: among which was "Adriano," in London, in the winter of 1735 and 1736, which had a run of twelve nights; and in 1744, "L’Errore di Salomone," in which, Monticelli performed.

Veracini’s first arrival in England was in the year 1713, when in the advertisements of the time for the opera of Dorinda, it is said that “Signor Veracini, lately arrived, will perform symphonies;” and the same year, with the operas of Crefo, Arminio, and Erninelinda, folos on the violin were frequently performed by Veracini.

W. saw and heard him perform in the year 1745, at Hickford’s room, where, though in years, he led the band at a benefit concert for Jozzi, the second fiddle, at the opera, in such a bold and masterly manner as we had never heard before. Soon after this, in returning to the continent, Veracini was shipwrecked, and lost his two famous Steiner violins, thought to have been the best in the world, and all his effects. He used to call one of his violins St. Peter, and the other St. Paul.

As a composer he had certainly a great share of whim and caprice, but he built his fancies on a good foundation, being an excellent contrapuntist. The peculiarities in his performance were his bow-hand, his shake, his learned arpeggios, and a tone so loud and clear, that it could be distinctly heard through the most numerous band of a church or theatre.

Veracini and Vivaldi had the honour of being thought mad for attempting in their works and performance what many a fopper gentleman has since done encensured; but both these musicians, happening to be gifted with more fancy and more hand than their neighbours, were thought infame; as friar Bacon, for superior science, was thought a magician, and Galileo a heretic.

VERA-CRUZ, in Geography, a sea-port of Mexico, in the province of Tlaxcala, with a secure harbour, defended by a fort, upon a rock of a neighbouring island, called St. John d’Alva, in the gulf of Mexico. This is fortified with 350 pieces of cannon; and signals are made from a high tower. This is a place of very great extent, and perhaps one of the most considerable in Spanish America for trade, it being the natural centre of the American treasure, and the magazine of all the merchandise sent from New Spain, or of that transported hither from Europe. It receives a prodigious quantity of East India goods over land from Acapulco, brought from the Philipine Isles. Upon the annual arrival of the flota here from Old Spain, a fair is opened, which lasts many weeks, when this place may be said to be immenely rich. Its situation is unhealthy, from the bog round it, and the barrenness of the soil. It parts the sea in a semicircle, and is inclosed with a single wall or parapet, six feet high and three broad, surmounted by a wooden palisade much decayed. The wall is flanked with fixe feeble battions, on square towers twelve feet high. On the shore to the S.E. and N.W. are two redoubts, with some cannon to defend the port. The houses are well built with stone and lime, and have wooden balconies. The streets are wide, well paved with pebbles, and kept in excellent order. The churches are much decorated with silver; and in the dwelling-houses, the chief Luxury consists of porcelain and other Chinese articles. The principal inhabitants are merchants; but European commerce is mostly carried on at Xalapa. The population is about 7000 or 8000; the inhabitants are generally proud, indolent, and devout; but commerce is well understood, and here are seven or eight houfes, each worth a million of dollars. The women are rarely handsome, and live in retirement; the only amusements being a coffee-houf and procussions, or religious masquerades, the penitents whipping themselves with much bloodshed. A charity of 5000 dollars to marry four poor girls has, as it usual in such cases, reverted to the rich. The harbour of Vera-Cruz might offer anchorage to 30 or even 60 ships of war in four to ten fathoms; but the northerly winds are terrible, and often drive vessels on shore. In the rainy season the marshes on the south are haunted by caymans, or alligators, from seven to eight feet in length, but innocent. The sea-fowl are innumerable, and the mosquitoes very troublesome. The north winds are said to be so violent, that the ladies are excused from going to mass; and these gales sometimes load the walls with sand. In the rainy season the water regularly falls in the night. Earthquakes are frequent. Vera-Cruz having been taken and plundered several times by the Buccaneers, the Spaniards have built forts, and placed sentinels along the coast; their ordinary garrison consisting only of 60 horse and two companies of foot; 180 miles E.S.E. of Mexico. N. lat. 19° 4', W. long. 97° 20'.

VERA-CRUZ, a port in the bay of St. Philip and St. Jago, in Terra Australis del Espirito Santo, discovered by Quito in 1606, and, according to him, capable of containing 5000 ships, with clear foundings of black sand, and water from three feet to 40 fathoms.

VERA-CRUZ, Old, a sea-port of Mexico, in the province of Tlaxcala. This is the port where Cortez landed in 1519: 15 miles N. of Vera-Cruz. This is situated in a valley; and the river is full of caymans, too strong to draw an ox under water. They are fond of the flesh of dogs. N. lat. 19° 20'. W. long. 97° 40'.
VERACUNDALORE, a town of Hindooftan, in the Carnatic; 20 miles S.W. of Bomrauzepollam.

VERAGILA, a small island in the gulf of Venice. N. lat. 44° 11'. E. long. 15° 32'.

VERAGRI, in Ancient Geography, a people of the Alps, in the Pennine valley. Caesar places them between the Nantuates and the Seduni.

VERAGUA, in Geography, a province of Mexico, bounded on the N. by the gulf of Mexico, on the E. by the province of Darien, on the S. by the Pacific ocean, and on the W. by Costa Rica. This coast was first discovered by Columbus, in the year 1503, to whom it was granted, with the title of duke. To the river now called Veragua, he gave the name of "Verdes-aguas," on account of the green colour of its water; or, according to others, because the Indians called it by that name in their language. But however that may be, it is from this river that the province derives its name. In 1528, the captains Gasper d'Espinoza and Diego de Alvaro, renewed the discovery by land; but, being repulsed by prince Urraca, were obliged to content themselves with a settlement in the neighbourhood; and even here the Spaniards were not able to maintain their ground against the frequent incursions of the Indians; so that finding the absolute necessity of a stronger settlement, they built the city Santa Fe, on the spot where it now stands. This province, though geographically belonging to North America, is included within the kingdom or territory of Terra Firma. The country is rugged and mountainous, but abounding with beautiful and excellent woods, and having vales that afford rich patulures. The monkeys found here are small but beautiful, being of a buff-colour, with a white crown; but too delicate to be removed from their native elims. It is said to rain here every day in the year; and the rain is attended with tremendous thunder and lightning, and produces torrents that descend with rapidity and violence from the mountains. Its gold-mines are rich, but little wrought, because every article must be carried on the shoulders of the Indians up the steep mountains. The Doraces, and other savage tribes, live naked by the mountains, on roots and fruits; but several have been converted since the year 1760 by the Franciscans, who have founded some Indian villages. The capital of this province is called by the same name, and also St. Jago de Veragia (which see); it is situated in a warm and moist climate, abounding in maize, yucca, a root of which bread is made, plantains, and cattle, but principally in swine. The natives dye their cotton of a rich and permanent purple, with the juice of a sea-fausl found on the coast of the Pacific, akin to the murex of the ancients; with which, and some gold from the mines, they carry on trade with Panama, and the provinces of the kingdom of Guatamala. Here is an elegant hospital; and fourteen villages are subject to the jurisdiction of this town, which is ruled by a governor.

VERAL, a river of Spain, which runs into the Aragon.

VERALA, in Ancient Geography, a town of Hifpania Citerior, between Calaguris and Trihum.

VERAMALLY, in Geography, a town of Hindooftan, in the Carnatic; 20 miles S. of Trinelpopay.

VERANO AVE, or AVE DE Verano, in Ornithology, the name by which the Portuguese in the Brazil call a large bird of the thrush kind, approaching to the size of a small pigeon, remarkable for its loud noise; and more commonly known by its American name guirapanga.

VERANOCA, in Ancient Geography, a town of Asia, in Phoenicia.

VERAPATCHY, in Geography, a town of Hindooftan, in the Myfore; 20 miles W.N.W. of Dindigul.

VERA-PAZ, a province of Mexico, in the domain of Guatamala, bounded on the N. by the province of Chipa, on the E. by the bay and province of Honduras, on the S. by Guatamala, and on the W. by Soconusco; about 120 miles in length, and 74 in breadth. In one part of the country the air is healthy, in the other not. The country is subject to earthquakes, thunder, and nine months' rainfall. The foil is mountainous, yielding little corn, but abounding in forests of cedar, &c. in which are many wild beasts. The principal commodities are drugs, cocoa, cotton, wool, honey, &c.

VERA-PAZ, or COBAN, a town of Mexico, and capital of the province of Vera-Paz, situated on a river which runs to the bay of Honduras; 660 miles S.E. of Mexico. N. lat. 15° 50'. W. long. 91° 14'.

VERATO, a town of Naples, in the province of Otranto; 4 miles S. of Alessano.

VERATRM, in Botany, which derive from veræ atrum, truly black, because the root is, externally at least, of that colour; may mix or be left among those ancient names whose origin is unknown. It occurs in Lucretius and Pliny, indicating some very active or poisonous plant; and is generally supposed synonymous with the Aconitum Alpinum of Dioscorides, itself rather doubtful, and whose particular designation is a contradiction to the above etymology. Whatever difficulties may attend the determination of the ancient Veratum, this name is now universally applied to the genus we are about to describe, one of whose original species having nearly white, and the other as nearly black, flowers, the English appellations, of White and Black Helbroe, suit them so well, as to efface all memory of old uncertainties.—Linn. Gen. 540. Schreb. 715, Willd. Sp. Pl. v. 4. 895. Mart. Mill. Dict. v. 4. Artt. Hort. Kew. v. 5. 425. Pursh 242. Jaff. 47. Tourn. t. 145. Lam. Marck Illutr. t. 543. Gartn. t. 18.—Clais and order, Polygama Monocora, or more properly Hexandra Trigyna. Nat. Ord. Coronaria, Linn. Junci. Jaff. Melanbach, Brown.

Gen. Ch. Cal. none, unleas the corolla be taken for fuch. Cor. Petals fix, elliptic-oblong, sessile, thinner at the margin towards the base, and finely ferrated or fringed in that part, permanent. Stam. Filaments fix, inserted into the base of the petals,awl-shaped, converging round the germen, spreading at the summit; anthers quadrangular, veratifoliate, attached by the back. Pijf. Germs three, superior, oblong, compressed, erect, combined, terminating in three very short styles, with simple spreading stigmas. Peric. Capsules three, oblong, erect, compressed, of one cell and one valve, burfting at their inner margins by which they are originally connected. Seeds few, obliquely imbricated, inserted into each margin of the capsule, oblong, compressed, winged at each end; the wing at the lower part rounded. Several flowers, on the same plant, have only flight rudiments of a pilil.


Mal. This genus has been thought too near Melan— thium, see that article. The capsules of the latter are fingle, of three cells, and in some species the cells burft externally, but this is not the case with M. floribum, whose cells burft at the inner angle only. The subject wants revision. The habit of Melan-thium, for the most part an Afri- can genus, is very unlike Veratum, the leaves being slender, and inflor- ence more simple. The corolla is more coloured, with elongated claws; and though permanent, has less of the coriaceous nature of a calyx. Helonias, (see that ar-
V. album. White Veratrum, or Common White Hellebore. Linn. Sp. Pl. 1479. Wild. n. 1. Ait. n. 1. Jacq. Auct. t. 335. Fl. Dan. t. 1120. Mill. Ic. t. 271. Mill. Illustr. t. 98. Woody. Med. Bot. t. 100. (Helleborus albus; Ger. Em. 440. f. 1.)—Panicle three-compound. Petals ascending, elliptical.—Native of alpine meadows in most parts of Europe, from Norway to Greece; but not of Britain. It is, of course, a hardy perennial in our gardens, where it has been cultivated out of mind, flowering from June to August. The root is tuberculous, black on the outside, with long, fimbriate, white, cylindrical fibres. Stem from two to five feet high, flat, erect, fimbriate, leafy, terminating in a large, branching, downy panicle, of innumerable greenish-white flowers, with little or no scent, an inch broad, whose petals when in full perfection spread horizontally, but in fading return to their original ascending posture, becoming green, leafy, and coriaceous. The leaves are large, elliptical, entire, with many ribs, smooth, of a fine green; the uppermost becoming oblong or lanceolate bracts. Each partial flower-fall is also accompanied by an elliptical-lanceolate downy bract, various in length. This flatly plant, accompanied by Gentiana lutea, makes a magnificent appearance in rich pastures on the Alps of Switzerland and Savoy, where they both grow more luxuriantly than in gardens.—Mr. Sieber of Prague has sent us from the Alps of Austria, under the name of "V. viride Bernhards," what seems a greenier-flowered variety of the album, and different from the following; but it is extremely difficult to decide on this point, without seeing the plants alive.

2. V. viride. Green Veratrum. Ait. n. 2. Wild. n. 2. Pursh n. 1. Bigelow Bolt. 246. (V. album; Michaux Boreal.-Amer. v. 2. 249. Heloniæ viridis; Curt. Mag. t. 1096.)—Spikes panicled, dense, cylindrical. Petals ascending, elliptical.—In swamps and on mountain bogs, from Canada to Carolina, flowering in July. A flately plant, from three to six feet high. Pursh. Dr. Bigelow, in his Flora Boreali-Americana, says this plant, not unfrequent in meadows and swamps about Boston, is called Poke root, or Swamp Hellebore. It was cultivated in England by Peter Collinson, in 1742. The foliage and habit are like the preceding, but the panicle is larger and greener; its branches longer and more cylindrical, spikèd, not racemose, each flower being nearly or quite sessile. The petals are broader; their margins thickened and mealy about the base.

3. V. nigrum. Dark Veratrum. Linn. Sp. Pl. 1479. Wild. n. 3. Ait. n. 4. Jacq. Auct. t. 336. Curt. Mag. t. 963. (Helleborus albus; Ger. Em. 440. f. 2.)—Clusters panicked, dense, cylindrical. Petals ovate, widely spreading; at length reflexed.—Native of dry mountainous situations, in Siberia, Hungary, Austria and Greece, flowering in July. Perfectly hardy in our gardens, where it blooms early and increases without care. Provided the soil be dry. It agrees with the first species in habit and leaves, but is rather taller, and is very remarkable for the dark purplish-brown, almost black, hue of its flowers, which exhale a faint caddy-vew scent. They compose long, cylindrical, sessile clavures, assembled into a long panicle, accompanied by narrow flat-strapèd bractes in the lower part. Each flower is but half as broad as those of V. album, and the petals turn backward as they fade, becoming finally of a dull green.

4. V. virginicum. Virginian Veratrum. Ait. n. 5. (Melanthium virginicum; Linn. Sp. Pl. 483. Wildl. Sp. Pl. v. 2. 266. Pursh 240. Helonia virginica; Curt. Mag. t. 965. Aphiodelo allia floridana, ramofo cane, floribus ornithogali oblofeitis; Pluk. Amath. 40. t. 434. f. 8.)—Clusters panicked, loose. Petals elliptical, spreading, with two spots at the base; hairy at the back.—In low grounds, amongst luxuriant herbage, from New York to Carolina, flowering in June and July, perennial. Rather scarce in gardens, though tolerably hardy. The stem is from three to five feet high, downy. Leaves linear-lanceolate, folded, ribbed, pointed. Panicle pyramidal, of numerous, lowely racemose, many-flowered branches, whose partial flalks are about half as long again as the petals. Flowers green, with two brown spots on each petal. After being expanded for some time, they turn to a red-brown.

5. V. parviflorum. Small-flowered Veratrum. Michaux Boreal.-Amer. v. 2. 250. Wildl. n. 4. Ait. n. 5. Pursh n. 2.—"Clusters panicked, with slender branches. Petals oval-lanceolate, acute at each end. Leaves elliptical, flat, smooth."—On high mountains in Carolina, flowering in July. Flowers small, green. Root perennial. Pursh. The leaves are like those of a Veratrum, but not so much furrowed, or plaited. Petals without glands. Inflorescence of that of a Melanthium. Michaux. We have seen no specimen nor figure, neither of this nor the following.


7. V. Sabadilla. Cauic Veratrum, or Indian Caufic. Barley. Retz. Obs. fae. 1. 31. n. 107. Wildl. n. 5. (Cevadilla; Dale Pharmac. 286. Hordeum cauicum; Bauh. Pin. 23. Theatr. 467, with a probably fictitious figure. Ytscevumpatii, fett Canis interjector, vel Hordeolum; Hern. Mex. 307, with an apparently authentic figure.)—Leaves linear-lanceolate, ribbed. Clustor simple, dense, folitary, terminal.—Native of the colder regions of Mexico. The leaves appear to be all nearly radical. Stem solitary, simple, erect, almost naked, three flans high. Clustor erect, cylindrical, a flan long, nearly or quite simple. Flowers turned to one side, of a very dark purple. Petals ovate.—Retzius, who first introduced this plant into a scientific botanical work, found a specimen of the flowers, imported along with the seeds, in a druggist's shop. They answered to the character of a genuine Veratrum, as might be expected from the seeds and capsules, which we have occasionally met with, and whose qualities are analogous to those of V. album. But the learned professor never thought of tracing out the synonyms, or searching for any figures, of this little-known plant; which defect we have endeavoured to supply. For the medical properties of the seeds in question, see CEVADILLA.

For V. luteum, Linn. Sp. Pl. 1479. Wildl. n. 6, see HELONIAS, n. 3.

Veratrum, in Gardening, contains plants of the hardy, herbaceous, perennial kind, among which the species cultivated are, the white-flowered veratrum, or white hellebore (V. album); the dark-flowered veratrum (V. nigrum); and the yellow-flowered veratrum (V. luteum).

The first has the flalks three or four feet high, and branching out on every side almost their whole length; the branches and principal flalk being terminated by spikes of flowers set very close together, which are of a greenish-whitc or herbaceous colour, and appear in July.

The second has the flalks rising higher, but the flowers are of a dark-red colour, which appear almost a month sooner.

The third has a large tubercular root with a single flalk, about a foot high, having the flowers produced at the top, in a single thick clove spike, which are small, and of a yellowish-white colour, appearing in June.
Method of Culture.—All these plants may be increased by seed and parting the roots.

The feed should be sown in the autumn or early spring, upon a bed or border of light earth, or in a box filled with the same port of mould. When the plants are come up in the spring, keep them clear from weeds, and refreshed with water occasionally when the season is hot and dry; and in the following autumn, when the leaves decay, take them up carefully without injuring the roots, and plant them out about half a foot square in a fresh bed of light mould; and when they have remained in it till fit for flowering, they should be removed into the borders, clumps, or other parts.

This is, however, a tedious method, as they seldom flower in less than four years; therefore the root method is most likely to succeed in the first spring, when the leaves decay, and be planted out in a light, fresh, rich mould where they are to grow; they should not be removed oftener than once in about four years. The roots should not be parted too small.

These plants have a fine effect in the middle of large borders, clumps, and other similar situations, in pleasure grounds and other places by the singularity of their large furrowed leaves, and their different modes of flowering.

The first sort is much cultivated as a medicinal plant for the use of its root, as well as the black sort occasionally; in which intention the plants should be set out in beds or borders in any common parts of the ground.

Veratrum, in the Materia Medica. See Hellebore.

Mr. James Moore has suggested that a vinous infusion of the root of the veratrum album, or white hellebore, constitutes the active ingredient in the eau médicinale d’Huffon. Mr. Moore gives the following preparation: take of white hellebore-root, eight ounces; white wine, two pints and a half. The root is to be cut in thin slices, and infused for ten days, occasionally shaking the bottle. Let the infusion be then filtered through paper.

The dose of the mixture, in cafes of gout, may be from one fluid-drachm to three fluid-drachms.

Verb, in Grammar, a word serving to express what we affirm of any subject, or attribute to it; or, it is that part of speech, by which one thing is attributed to another, as to its subject; as the words is, underlands, bears, believes, & c.

This is, in other words, the definition of a verb adopted by Dr. Prießløy in his Grammar. But this definition seems to include not only verbs, but likewise all adjectives, and abstract nouns signifying qualities; for when we say " God is good," or " Goodness belongs to God," do not the words " good" and " goodness" express what is affirmed of or attributed to the Deity? But if in this definition it is merely affirmed, that the essence of the verb conveys in affirmation, it might have been expressed with greater precision, thus: " a verb is a word affirming something of, or attributing something to, a thing." It is, says Dr. Blair, the affirmation that seems to be that which chiefly distinguishes the verb from the other parts of speech, and gives it its most copious power. Hence there can be no sentence, or complete proposition, without a verb either expressed or implied; for whenever we speak, we always mean to assert, that something is or is not; and the word which carries this affirmation, or affirmation, is a verb. This ingenious writer, however, seems to have improperly included time as one of the three things implied in all verbs, adding this to the attribute of some substantive, and an affirmation concerning that attribute. The definition of Dr. Beattie seems to be more objectionable. He defines a verb to be " a word necessary in every sentence, signifying the affirmation of some attribute, together with the designation of time, number, and person." According to this definition, neither infinitive moods, nor gerunds, nor participles, nor verbs are verbs; for they neither contain an affirmation, nor signify time, nor are limited either to number or person. If affirmation, which we conceive to be the case, be essential to verbs, it is possible to form a tolerably copious language with only one verb in it; for infinitives, participles, adjectives, &c. may be so united to nouns by the copula, or verb is, alone, as to express almost any idea which we can have occasion to communicate. But if the circumstances of time, person, and number, be essential to verbs, it is more than probable that languages may subsist without verbs, which have not a single verb in them. And in this case Dr. Beattie cannot sufficiently maintain, as he affirms, that a verb is " a word necessary in every sentence." In the Malay language, e.g. which is held in high estimation, and which has wide extent in the East Indies, the verb admits of no modification whatever, on account, either of person, tense, or voice; in all these respects, the personal pronouns only, with particles prefixed, determine the sense.

The verb is thus called of the Latin verbum, word, by way of eminence; as being the principal word of a sentence. Accordingly verbs, as Dr. Adam Smith observes, must have been coeval with the first attempts towards the formation of language. No affirmation can be expressed without the allusion of some verb. This writer suggests, that the radical verb, or the first form of it, in most languages, would be what we now call the imperfect verb: as " it rains," and the like: as this is the simplest form of the verb, and merely affirms the existence of an event, or of a state of things. By degrees, after pronouns were invented, such verbs became personal, and were branched out into all the varieties of tenses and moods. On this subject, see Verb, Substantive, infra.

The common definition given by grammarians is, that the verb is a word which betokens being, doing, or suffering. This is the definition of the learned Bishop Lowth, and it includes nothing more than what is essential: so that it is equally applicable to the verb in all languages, in all its various forms, comprehending not only infinitives and participles, but likewise gerunds and participles. If it is in any respect defective, it is because it does not in all cases sufficiently distinguish verbs from verbal nouns. Infinitives and participles, gerunds and participles (see each in its place), not only signify actions, but govern the cases of nouns and pronouns in the same manner with the verbs, and therefore should be comprehended under the name of verbs. But those verbal nouns which do not govern accussative cases have not the fame prepositions; for they have not the regimen of verbs, but of substantives, and consequently more properly belong to that class.

To conceive the origin and office of verbs, it may be observed, that the judgment we make of anything, as when I say the earth is round, necessarily includes the perception of the fact; the first, called the subject, is the thing we affirm of, e.g. earth. The second, called the attribute, is the thing affirmed, e.g. round. The third, is, connects those two terms together, and expresses the action of the mind, affirming the attribute of the subject.

This last is what we properly call the verb; and which some of our later grammarians, particularly the Port Royalists, choose to call by a more significative word, affirmation. The reason is, that its principal use is to signify affirmation; that is, to shew the discourse in which that word is used, is the discourse of a man who does not only conceive things, but judges and affirms somewhat of them.
By this circumstance, a verb is distinguished from nouns, which also signify an affirmation, as affirms: affirmatio: those only signify affirmation, as that, by a reflection of the mind, is rendered an object of thought: so that they do not shew, that the person who utters them affirms, but only that he conceives an affirmation.

Though the principal use of verbs be to signify affirmation or assertion, they also serve to express the other motions of the soul; as to define, pray, command, &c.; but this they only do, by changing the mood, or inflexion.

Here, we only consider the verb in its primary significations, which is that it has in the indicative mood. On this footing, the verb should have no other use, but to mark the connection which we make in the mind, between the two terms of a proposition; but the verb齿轮, to be, is the only one that has retained this simplicity: nor, if strictness, has this retained it, but in the third person, as齿轮 is.

In effect, men being naturally inclined to shorten their expressions, to the affirmation they have almost always added other significations in the same word: thus, e.g. they add that of some attribute, so as that two words make a proposition: as in Petrus vivit, Peter lives: where vivit includes both the attribute and affirmation: it being the same thing to say Peter lives, as that Peter is living. And hence the great variety of verbs in every language: for if people had been contented to give the verb its general significations, without any additional attribute, each language would only have needed one verb, viz. the verb substantive齿轮, is.

Again, on some occasions, they also superadd the subject of the proposition, as sum homo, I am a man; or vivit, I live: and hence the diversity of persons in verbs.

Again, we also add to the verb, a relation to the time, with regard to which we affirm: so that one single word, as conatus, signifies that I attribute to the person I speak the action of floating, not for the present time, but for the past: and hence the great diversity of tenses in many verbs.

The diversity of these significations, or additions in the same word, has perplexed and deceived many of our best authors, in the nature of a verb; and has led them to consider it, not according to what is essential to it, which is to affirm: but according to some of these incidental relations.

Thus, Aristotle, taking up with the third of those additional significations, defines verb to be vox significans cum tempore; a word signifying something with time.

Others, as Buxtorf, adding the second relation, define it, vox flexibus cum tempore et persa; a word admitting of divers inflexions, in respect of time and person.

Others, taking up with the first of the additional significations, which is that of the attribute, and considering that the attributes men ordinarily add to the affirmation, were actions and passions, have supposited the essence of a verb to consist in signifying actions or passions.

Lastly, Scaliger imagined he had made a great discovery in his book of the Principles of the Latin Tongue, in laying, that the distinction of things into permanentes, and fluentes, into what remain, and what pass away, is the proper source of the distinction between nouns and verbs: the first being to signify what remains, and the second what passes.

But from what we have said, it is easy to perceive, that these definitions are all false: and that the only true definition is vox significans affirmationem: this definition includes all that is essential to the verb: but if one would likewise include its principal accidents, one might define it, vox significans affirmationem, cum definitione persena, et temporis: a word which signifies an affirmation, with a designation of person, number, and tense; which is what properly agrees to the verb substantive齿轮.

For as to other verbs, considered as becoming different by the union of certain attributes, one may define them thus: vox significans affirmationem alterius attributi, cum significacione persena, numeri, et temporis: a word which expresses the affirmation of some attribute, with a designation of person, number, and time.

Verbs, according to Mr. Harris, are those attributes, which have a complex power of denoting both an attribute and an affirmation: those which take the attribute alone without the affirmation are participles; and all the other attributes are included under the general name of adjectives. And as some attributes have their essence in motion, e.g. to walk, to live, &c. others in the privation of motion, e.g. to die, &c. and others again in subjects, which have nothing to do with either motion or its privation, as great and little, white and black, &c. these last are adjectives, and adjectives which denote motion or its privation are either verbs or participles. And motions and their privation, comprehended under the general term energy, imply time as their concomitant, and hence, he says, verbs which denote them, come to denote time also. See Tense. See also Mood.

Every energy has a reference, says this ingenious writer, to some energizing subsistence, and is conversant about some subject, and hence he derives the distinction between verbs active and passive: and as every energy respects an energizer, or a passive subject, hence appears the reason why every verb, whether active or passive, has in language a reference to some noun for its nominative case. When among the infinite subjects, to which the energy refers, that happens to occur, which is the energizer also, as Brutus loved bimself, loved himself, &c. in such case the energy hath to the same subject a double relation, both active and passive: and this gave rise among the Greeks to that species of verbs, called verbs middle: but in other languages, the verb still retains its active form, and the passive subject (fe or bifelf) is expressed like other auxiliatives. Again, in some verbs, it happens that the energy always keeps within the energizer, and never passes out to any foreign subject, because the energizer and the passive subject are united in the same person; and then we obtain that species of verbs, called by grammarians verbs neuter, as if they were void both of action and passion, though they may rather be said to imply both. Of the above species of verbs, the middle cannot be called necessary, because most languages have done without it: those remaining are, therefore, the active, the passive, and the neuter, which seem essential to all languages whatever. Mr. Harris observes, that though the greater part of verbs denotes attributes of energy and motion; there are some which appear to denote nothing more than a mere simple adjective, joined to an affirmation, as ἐγείρει in Greek, equalled in English, alio and tunc in Latin; and there are also verbs, which are formed out of nouns, or in which the substantive is converted into an attributive. There are other superposed affections of verbs, besides moods and tenses, such as number and person. But these are, in fact, the properties not of attributes, but of substantives. Hermes, chap. vii. viii. and ix.

Verbs are variously divided: with respect to a subject or object, they are divided into actives, passives, or neuters, &c.; with respect to their construction, into transitive and intransitive; with respect to their formation or inflexions, into regular and irregular, personal and impersonal: their auxiliary, subjunctive, &c. See Language, Grammar, and the subjacent articles.
VERB.

**Verb Active**, is a verb which expresses an action that falls on another subject, or object. It is called also 
*transitive*, because the action paffeth over to the object, or hath an effect upon some other thing. See **Active**.

**Verb Passive**, is that which expresses a passion; or which receives the action of some agent, and necessarily implies an object acted upon, and an agent by which it is acted upon: it is conjugated, in the modern tongues, with the auxiliary verb *I am, je suis, je sono, &c.*

Some do not allow of any verbs passive in the modern language; the reason is, what we call passive is nothing but the participle of the verb, joined with the auxiliary verb, *to be*; whereas the verbs passive of the Latin, &c. have their particular terminations. See **Passive**.

**Verb Neuter**, is that which signifies an action that has no particular object on which to fall; but which, of itself, takes up the whole idea of the action: or a verb neuter expresses being, or a state or condition of being; when the agent and the object acted upon coincide: as, *I sleep, thou waknest, he frowns, we walk, you run, they fland.*

The Latins call them *neuters*, because they are neither active nor passive: though they have the force and significations of both; as, *I languijhe, signifies as much as, I am languijbing; I obey, as much as, I exercise obedience, &c.* only that they have no regimen to particularize this significations. The verb neuter is called *intrative*; because the effect is confined within the agent, and doth not pass over to any object.

The difference between verbs absolutely neuter, as, *to sleep, and verbs active intrative, as, to walk, though founded in nature and truth, is of little use in grammar; the construction of both is the same. Lowth's Gram. p. 62.

Of these verbs, there are some which form their tenses by the auxiliary verb *have*; as, *I have slept, you have run.* These, grammarians call *neuter active*.

Others there are, which form their compound parts by the auxiliary verb *to be*; as, *I am come, I am arrived.* These are called *neuters passive*.

The neuter verb is varied like the active; but, having somewhat of the nature of the passive, admits in many instances of the passive form, retaining still the neuter significations: chiefly in such verbs as signify some sort of motion, or change of place or condition; as, *I am come, I was gone,* &c.

In English, many verbs are used both in an active and neuter significations, the construction only determining of which kind they are.

**Verb Sublative**, is that which expresses the being, or subsistence, which the mind forms to itself, or supposes in the object; whether it be there, or not as, *I am, thou art.*

Existence, says Mr. Harris, may be considered as an universal genus, to which all things of all kinds are at all times to be referred. The verbs, therefore, which denote it, claim precedence of all others, as being essential to the very being of every proposition in which they may be found, either express, or by implication; express, as when we say, *the sun is bright*; by implication, as when we say, *the sun rises*, which means, when resolved, *the sun is rising.* The verbs *is, groweth, becometh, eft, fit, etept, ete, *πη, πης, πησ, πησαι, are all used to express this general genus; and are called by the Latins *verbs sublantes*, and by the Greeks *μετορα, σπερμα, verbs of existence*, a name more apt, as being of greater latitude, and comprehending equally as well attribute as subsistence. The principal of these verbs is the verb *is, eft, it.* All existence is either absolute, as when we say, *B is*; or qualified, as when we say, *B is an animal, B is black,* &c. And with respect to this difference, the verb, *is, can by itself express absolute existence, but never the qualified, without subjoining the particular form; consequently, when *is* only serves to subjoin some such form, it has little more force than that of a mere affirmation. Under the same character, it becomes a latent part in every other verb, by expressing that affirmation, which is one of their essentials: e.g. *riseth means is rising, &c.* Moreover, as to existence in general, it is either mutable, as in the objects of affection; or immutable, as in the objects of intellection and science. All mutable objects exist in time, and admit the several distinctions of present, past, and future: but immutable objects know no such distinction, but rather stand opposed to all things temporary. And hence refult two different significations of the sublantine verb *is*, as it denotes mutable or immutable being: e.g. *if we say, this orange is ripe, is meaneth that it existeth fo now at this present, in opposition to past time, when it was green, and to future time, when it will be rotten: but if we say, the diameter of the square is incommensurable with its side, we do not intend by it that it is incommenurable now, having been formerly commensurable, or being to become fo hereafter:* on the contrary, we intend that perfection of existence, to which time and its distinctions are utterly unknown. Under the same meaning, we employ this verb, when we say, *truth is,* or *God is*: the opposition is not of time present to other times, but of necessary existence to all temporary existence whatever. Hermes, p. 88, &c.

In every language, says Dr. Adam Smith, in his "Formation of Languages," annexed to his "Theory of Moral Sentiments," there is a verb, known by the name of the sublantine verb, in Latin, *sum, in English, I am.* This verb, he says, denotes not the existence of any particular event, but existence in general. On this account it is the most abstract and metaphysical of all verbs, and consequently could by no means be a word of early invention. Nevertheless he allows, that it is in every language; and therefore in languages which are in their earliest infancy. Others are of opinion, not without reason, that the verb sublantine, or copula, *is, is not only the most necessary, but the most simple of all verbs, for it contains nothing more than an affirmation, or affirmation, that a thing exists. The idea conveyed by this simple proposition is coeval with thought itself: for what can we think about, unless we think that something is, or exists? This copula, or verb of existence, *is, must appear to be coeval with language itself. But we cannot reasonably infer from hence, that this was the case with respect to any other finite verb. It is probable, that people, in their first attempts to express their ideas by words, would be some time before they invented any other word containing in itself an affirmation or affirmation: for they would not, at a very early period, think of contriving words fo complex in their nature as to include in them both the name of an action and an affirmation.*

An ingenious writer on the subject of verbs (see Pick-bourn's Differtation on the English Verb) conjectures that the first mode of expressing actions or passions would be by participles or verbal nouns; i.e. words signifying the names of the actions or passions they wanted to describe; and these words, connected with their subject by the copula *is* (a word coeval with speech itself), might, in these rude beginnings of language, tolerably well supply the place of verbs; e.g. from observing the operations of nature, such words as *rain or raining, thunder or thundering,* would soon be invented; and, by adding the copula *is,* they would say, *thundering, or thunder, it, or is not; raining, or rain, it,* which, by the rapidity of pronunciation, might in time
time form the verbs rains, thunders, &c. The observation of their own actions, or the actions of the animals around them, would soon increase their stock of ideas, and put them upon contriving suitable expressions for them. Hence might arise such words as these: sleep, or sleeping; fland, or standing; run, or running; bite, or biting; hurt, or hurting: and by joining these to substantives, by means of the copula it, they might form such fentences as these, Lion is sleeping, or perhaps Lion is fland, &c.; which would soon be contracted into Lion sleeps, flands, runs, bites, hurts, &c. Thus our little influated family might become possified of verbs including an attribute and an affirmation in one word.

The next step would probably be a distinction between actions in their progressive and in their finished state; i.e., actions going on in their presence, and perceived by their senses; and such as were ended, and consequently only known to them by memory, or by report, or by their effects: and they might perhaps affix such words as raining, thundering, sleeping, &c. to the former kind of actions; and such as rain'd, thunder'd, slept, &c. to the latter. And by joining the copula is to these words signifying perfect actions, in the same manner in which they had joined it before to the words signifying imperfect ones, and afterwards contracting them into single words, they might soon acquire a verb expressing a finished action and an affirmation in one word. This improvement would probably suggest to them the idea of making such further alterations in, or additions to, their verbs, as would make them significant of all the grand divisions of time.

But still their verbs would have neither person nor number, and would probably remain in that state till the invention of pronouns. But this, requiring some degree of abstraction, would probably not happen very early; for, in their first efforts to express themselves, they would be more likely to say, “Thomas loves William and Henry,” than “I love thee and him.” However, in process of time, pronouns would no doubt be introduced: and they might perhaps make such alterations in their verbs, as to accommodate them to their numbers and persons, though such an accommodation does not seem absolutely necessary. Languages may hereafter exil which do not vary their verbs to express either number or person. And, further, it is possible that there may be languages so constructed as not to admit any variation in their verbs, even to express time: for if the verb only contains, in itself, an assertion and an attribute, the time of it may be fixed by adverbs and other adjuncts. This author concludes that a definition applicable to the verb in all languages, and in all its forms, cannot comprehend in it any thing more than what bishop Lowth has expressed by saying, “A verb is a word signifying to be, to do, or to suffer.”

The copula, or sublitative verb, is, according to this author, is, as we have already stated, the simplest of all verbs; and must necessarily have been contemporary with the first efforts of mankind to express their ideas by words. Without this we cannot unite an adjective to a sublitative, or affirm that any thing is good or bad, or poseffes any quality whatever, or even exisits. But this is the only verb, containing an affirmation, which is fo perfectly simple in its nature as not to comprehend, at least, two ideas, which may be easily separated, nay which must necessarily be separated, in the operations of the mind, whenever it endeavours to express them. Plures, it rains, or is raining, comprehends the idea which the mind forms of that operation of nature which we call rain or raining, and likewise an affirmation of the judgment which the mind forms concerning its present existence; and therefore cannot be expressed more simply and naturally than by is raining, or rain is, which is easily contracted into, rains.

**VERBS, Auxiliary, or Helping, are those which serve in conjugating active and passive verbs; such are, I am, I have &c.**

The auxiliary verbs are like prepositions, words of a very general and abstract nature. They imply the different modifications of simple existence, considered alone, and without reference to any particular thing. In the early state of speech, the import of them would be incorporated with every particular verb in its tenses and moods, long before words were invented for denoting such abstract conceptions of existence, alone and by themselves. But after those auxiliary verbs, in the progress of language, came to be invented and known, and to have tenses and moods annexed to them, like other verbs; it was found, that as they carried in their nature the force of that affirmation which distinguishes the verb, they might, by being joined with the participle which gives the meaning of the verb, supply the place of most of the moods and tenses.

The abbot de Dangeau distinguishes all verbs into two general kinds; auxiliary verbs, and verbs which make use of auxiliaries.

This distinction some may tax as not very just: in regard auxiliary verbs sometimes make use of auxiliaries themselves: but this does not destroy the division; it only shews, that the auxiliary verb has two formalities, or two different qualities, under which it is to be considered: in virtue whereof, it constitutes, as it were, two forts of verbs.

The verbs which make use of auxiliaries, he divides into active, neuter, and pronominal. Verbs neuter, he farther distinguishes into neuters active and neuters passive. Pronominals he distinguishes into identics, reciprocal, neutrized, and perfected. But several of these are peculiar to the French language. See **Auxiliary Verbs.**

When an auxiliary is joined to the verb, the auxiliary goes through all the variations of person and number; and the verb itself continues invariably the same. When there are two or more auxiliaries joined to the verb, the first of them only is varied according to person and number. The auxiliary must admits of no variation.

**VERBS, Regular, are those which are conjugated after forme one manner, rule, or analogy.**

**VERBS, Irregular, or Anomalous, are those which have something singular in the terminations or formations of their tenses. See **Anomalous Verbs.**

The formation of verbs in English, both regular and irregular, is derived from the Saxon. The irregular verbs in English are all monosyllables, unless compounded; and they are for the most part the same words which are irregular verbs in the Saxon. The first class of irregulars comprehends those that are become so from some kind of contraction: thus, some verbs ending in dor or t have the present, the past time, and the participle perfect and passive, all alike, without any variation; as, eat, hurt, end, &c. which are contractions from beaten, hurled, ended, &c., because of the disagreeable sound of the syllable of after dor or t. Others in the past time and participle perfect and passive, vary a little from the present, by shortening the doubleght, or changing the d into t: as, lead, led; move, mov'd, move, &c. Others not ending in dor or t are formed by contraction: as, burn, stood, for based; set, set, for possest, &c. The following, beside the contraction, change also the vowel: pull, pull'd; rent, rent'd; catch, catch'd.

The second class of irregulars are those that end in ge, both in the past time and participle, and change the vowel or diphthong into ou or ou: they are taken from the Saxen, in which the termination is eou: ang, hung, bough, bow, bought; feow,
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The third class of irregulars form the past time by changing the vowel or diphthong of the present; and the participle perfect and passive, by adding the termination en: these also derive their formation from the Saxon: such are, full, fell, fallen; smoke, smoked, smoked; draw, drew, drawn; play, played, player.

When en follows a vowel or liquid, the e is dropped. Some verbs, which change i short into a or u, and i long into o, have dropped the termination en in the participle; as, begin, began, begun; sing, sang, or song; &c. To this third class belong the defective verbs, be, been; go, gone, &c.

The whole number of verbs in the English language, regular and irregular, simple and compounded, taken together, is about four thousand three hundred. See in Dr. Ward's Essays on the English Language the catalogue of English verbs. The whole number of irregular verbs, including the defective, is about one hundred and seventy-seven. Lowth's Gram. p. 84. See conjugation.

Verbs, defective, are those which are not only for the most part irregular, but are also wanting in some of their parts. Such are the auxiliary verbs, most of which are of this number. They are in use only in some of their tenses and moods; and some of them are a composition of tenses of several defective verbs having the same significations.

Verbs Inchoative. See Inchoative.

Verbs Imperfessional. See Imperfessional.

There are also reduplicative verbs; as, refused, recall, &c.; and frequentative verbs, &c.

Verbs, Transitive. See Transitive, and Verb Active, supra.

For the observations of an ingenious and learned commentator on the origin, nature, distribution, and properties of verbs, we must content ourselves with referring to the article Grammar. It will be found that his sentiments differ in a variety of respects from those of many approved and popular writers, above stated: and we therefore prefer submitting them in the language of the author to the judgment of the philological reader, without any abridgment, and without any recapitulation, which would encroach too much on the limits to which we are confined. On this subject, see Language.

Verbal, something that belongs to verbs, or even to words spoken with the mouth.

Verbal nouns, are those formed from verbs. See In- 

Finitive.

A verbal contract, is that made merely by word of mouth, in opposition to that made in writing.

Verbal Accident. See Accident.

Verban., in Geography, a department of Italy, constituted of part of the duchy of Milan, situated on the side of lake Major, anciently called Verbanus Lacus, and the bailiwicks ceded by the Swifs. It contains 166,842 inhabitants, who elect twelve deputies. Varecio is the capital.

Verbanus, in Ancient Geography, a lake of Gallia Transpadana; its northern part was in Rhetia, and its southern part in Gaul.

Verbas, in Geography, a river of Bofnia, which runs into the Save; 25 miles N.N.E. of Banjaluka.

Verbasculum, in Botany, the diminutive of Verbascum, perhaps from some similarity of colour and aphis, which may be traced in the Primrose and Cowslip. Bauh. Pin. 241. This is precisely synomous with Primula; see that article.


Gen. Ch. Cal. Perianth inferior, of one leaf, small, permanent, in five deep, erect, acute, nearly equal, segments. Cor. of one petal, wheel-shaped, unequal; tube very short; limb spreading, in five deep rounded segments. Stam. Filaments five, awl-shaped, unequal, distant, declining, woolly, shorter than the corolla, inserted into its base; anthers compressed, erect, more or less kidney-shaped, bearded; Profil. Gement inferior, roundish; style thread-shaped, slightly swelling upwards, declining, rather longer than the flaments; Stigma obtuse. Peric. Capsule roundish-ovate, or ovate-oblung, slightly compressed, of two cells and two valves, burbling in the upper part, the valves sometimes splitting half way down; partition double, from the inflexed parallel margins of the valves, but often incomplete. Recept. ovate or globular, central, connected at each side, in an early flat at leaf, with the valves. Seeds numerous, minute, angular, dotted, inserted into the receptacle.


Obs. There is a great space between the inner edges of the inflexed valves and the central receptacle, in V. pulv- erulentum and some other species, that the ripe capsule is literally of but one common cell, though originally of two. Hence arose an error in Engl. Bot. p. 58, 59, which is corrected at p. 487 of the same work. Celsia (see that article) differs from this genus in having four flaments only, two long and two short. Professor Schrader, in the first part of an excellent monograph on Verbascum, published at Gottingen in 1813, p. 14, affirms that this difference is very constant and invariable, and therefore he is not disposed to concur with those botanists who combine these two genera. We heartily attend to this determination. With regard to the new genus of Ranonia, founded, if we mistake not, on V. Myconi, and distinguished by having a capsule of one cell, with two lateral linear receptacles; we must suspend our judgment till we can examine into that character, but the habit of the plant, and its oblong heart-shaped two-celled anthers, indicate a very distinct genus.

The species of Verbascum are among the most uncertain of any well-known genus. They are more than commonly variable in the colour and size of their flowers, and appear to be very subject to crofts inpregnation. Hence we are led to mistrust some reputed species, described even by the ablest writers. The production of several mere ones has been traced and recorded, and we have observed others. Professor Schrader indeed has long cultivated and studied what he has described, and his accuracy is indisputable. We shall give his new species, on his own authority, and we shall profit by his remarks in the general characters here prefixed to the particular descriptions.

The root is generally biennial, rarely perennial, its form tapering. Stem generally solitary, from a foot and a half to four or eight feet in height, erect, sometimes peculiarly stiff and straight, rarely a little zigzag, leafy, in several influences.
flances alternately branched, many-flowered, panicled, with racemose filacts; in V. Mycota only altogether wanting. Leaves all radical the first year, subequently all cauline: stalked, fleshy, or decurrent; always alternate, simple, oblong; undivided, lobed or pinnatifid; singly or doubly cre- nate or toothed, rarely entire; generally covered with dense, white, hairy or flary, or more and deciduous, woollline; sometimes nearly smooth. Flowers racemose, generally aggregate, crowded, and very numerous; mostly yellow, rarely yellowish-white, or, purple, or browm. Brevicaps. mostly ovate, or lanceolate, pointed, of two orders, external and internal. The whole genus is nearly, if not entirely, European, the species found in America, except perhaps V. Claytoni of Pursh and Michaux, having been apparently introduced from this quarter of the world. The Levant produces many fine ones, not well known to Linnaeus.

Sec. 1. Leaves deciduous.

1. V. Thapsius. Great Mullein; or High Taper. Linn. Sp. Pl. 252. Wildl. n. 1. Schrad. n. 1. Pursh n. 1. Pl. Brit. n. 1. Engl. Bot. t. 549. Fl. Dan. t. 634. (Thapsus barbitus; Ger. Em. 777. Φάππος, λιγνὸν αἰφένα; Dioec. book 4. chap. 104.)—Leaves decurrent, crenate, white, on both sides. Stem fleshy. Clusters dense. Flowers almost fleshy. —Found frequent throughout Europe, on banks and waste ground, flowering in July and August; very common in Greece. Mr. Pursh observes that, though common in America, this plant was probably introduced from Europe; nevertheless it spurs up abundantly in the most remote parts of the country, in fields newly cleared and burnt. The root is biennial. Stem from three to five feet high, erect like a staff, fleshy, winged with decurrent acute leaves, which are clothed with white entangled flary wool, like cloth or flannel. Flowers very numerous, large, of a bright golden-yellow, with orange-coloured hairy flamin, and roundish red anthers. Mr. Robbon of Darlington communicated to Dr. Withering a mule plant, produced under his own eyes, from this species imported by V. myrtum. Mr. D. Turner found a corresponding specime, now before us, at Barton, near Swaffham, Norfolk. The leaves are but slightly decurrent. Spike elongated and slender. The leaves of V. Thapsius, about a handfhaul boiled in a pint of milk, sweetened with sugar, strained, and the milk taken at bed-time, are useful in coughs, and more especially service- able in allaying the irritation of the piles. V. pulex has the same qualities. —V. thapsiformis, Schrad. n. 2. seems fearely more than a variety with a larger corolla, and two of the anthers oblong, instead of their being all round.

2. V. cripifolius. Thick-leaved Mullein. Schrad. n. 3. "Hoffmannelg and Link Lith. v. 1. 213. t. 26."—Leaves decurrent, obtuse ly crenate, densely woolly; the upper ones rather acute. Clusters dense. Flowers all- mott fesitles. Filaments smooth. Two of the anthers oblong.—Found in sandy ground in Portugal. The smooth filaments afford the chief distinction between this plant and the last, at least its variety called thapsiformis. Experience must shew, by cultivation, whether this be permanent.

3. V. cripfolidw. Pointed-leaved Mullein. Schrad. n. 4. t. 1. f. 1. (V. Thapsius; Ebrh. Pl. Off. n. 111.)—Leaves decurrent, crenate, woolly on both sides; the upper ones pointed. Cluster somewhat interrupted. Two of the anthers oblong.—Found in mountainous woods near Vienna. Schott. Near Uphal. Ebrhart. This Dr. Schrader mentions as the V. Thapsius of the Vienna botanists, agreeing in habit with the two foregoing, but the stem is of more humble stature, and more slender. Leaves smaller, less densely woolly; the upper ones taper-pointed. Inflorescence and flowers more like V. filamentosus; the clusters being interrupted, the flowers more flaked, and aggregate in little tufts. Corolla large. Two larger flaments having oblong anthers; and in our speciment from Ehrlhart smooth filaments, though the rest are hairy.


—Found near Naples. Stem two or three feet high, round; at length smooth and brownish. Leaves thickish, soft; their upper surface becoming green and slightly downy, though the under is snow-white. Flowers yellow, in tufts, almost seflile, about the size of V. Thapsius. Filaments clothed with white wool. Schrader. This appears to be really a very distinct species.

5. V. densus. Denfe-flowered Mullein. "Bertol. Pl. Rat. Ital. v. 3. 52." Schrad. n. 4.—Leaves downy; the radical ones lanceolate, elongated, crenate, deeply fer- rated at the base; upper item-leaves pointed, toothed, half-decurrent. Clusters dense. Flowers aggregate, nearly seflile. —Found on the summit of mount Brucciana, between Carrara and Maffi. Stem four or five feet high, angular, clothed with tawny woolllines, especially the upper part. Radical leaves more than eighteen inches long, two or three broad in the middle; green above; woolly hairy beneath; three of the items gradually shorter upward, ovate, pointed, sessile, with a small decurrent wing on each side, more downy all over, especially the uppermost. Clusters very dense, above a foot long. Flowers large, yellow, in tufts on extremely short filacts. Pubescent of the whole plant yellowish or tawny, compofed of branched entangled hairs, and much the most dense in the upper part. Bertoloni.

6. V. thapsoides. Long-spiked Mullein. Schrad. n. 7. t. 5. f. 2. "Hoffmannelg and Link Lith. v. 1. 214, exclud- ing the synonymus."—Leaves finely crenate, downy; radical ones oblong-lanceolate; the rest oblong, acute, half-decurrent. Flowers on short filacts, aggregate, rather crowded. Anthers nearly equal. —Native of Portugal. Perennial. Stem three or four feet high, or more, generally branching at the top into several long, rather slender, tolerably dense clusters of yellow flowers, smaller than V. Thapsius. Schrader. We conceive this to be no other than the Linnaean V. Thapsis; see V. Lychnis.

7. V. maculatum. Great-flowered Mullein. Schrad. n. 8. "Hoffmannelg and Link Lith. v. 1. 215. t. 27."—Leaves finely crenate, downy; radical ones elliptic-oblong, tapering at the base; the rest oblong, acute, half-decurrent. Clusters interrupted, with dilute tufts of flowers. Two of the anthers oblong.—Found by way fides, in the northern part of Portugal. Root topised to be biennial. Stem two or three feet high, erect, fimple, at length smooth and of a purplish-brown. Leaves thick, reticulated with veins beneath; their upper side becoming green and almost naked by age; radical ones flaked, three or four inches long, and half as broad. Flowers large, handfómfe, yellow. Hair of the filaments orange-coloured. Capsule small. Schrader.

ground in the south of Europe, and east of Asia. We gathered it on the ramparts of Pavia; and Dr. Sibthorp at Constantinople. A large biennial species, hoary all over, with denfe, flarry, entangled, woolly hairs. Stem solitary, erect, simple, round, leafy, ending in a long, interrupted, many-flowered, fucculuated stamens, sometimes accompanied at the base with one or more much shorter ones. Radical leaves, as well as those on the lower part of the stem, four inches or more in length, flaked, broadly ovate, bl untifh, obtusely crenate, thick, ruged, reticulated with copious veins, each tapering at the base into a winged footstalk: the upper ones gradually smaller, pointed, fucculent; heart-shaped at the base, clasping the stem, and somewhat decurrent; diminishing into taper-pointed bracteas, which project further than their respective tufts of flowers. Flowers large and handsome, of a golden-yellow, about five in each tuft, accompanied by small, lanceolate, partial bracteas. Partial flasks shorter than the calyx, which is smooth internally. Stamens purple, either all denfely hairy, with yellow, nearly uniform, anthers, or two of them bare or less oblong and imperfect anthers; in which case the respective filaments are less hairy, or quite naked. Germin clothed with very denfe wool, which comes off as the cauleale ripens.

We fearcefly discover any difference between the V. australis of our learned friend, and the phlomoides, of which his description answers exactly to our specimens. The radical leaves of the australis perhaps are larger and more lanceolate, but this can hardly indicate more than a variety. The anthers and filaments are acknowledged to vary in both, and we have found them to do so in phlomoides.

9. V. condensatum. Denfe-flowered Round-leaved Mullein. Schrad. n. 11. t. 5. f. 1.—"Leaves denfe; radical ones elliptic, oblong, tapering at the base, doubly and unequally crenate; those of the stem oblong, acute, simply crenate; uppermost roundish-ovate, pointed, slightly decurrent. Clusters denfe. Two of the anthers oblong."—Observed by Mr. Schott in Austria, on a barren soil. Biennial. We cannot but fpject this to be a variety of the last, with a more denfely hairy, more strongly crenate, radical leaves, and broader upper ones. The two species are, at least, very nearly akin.

10. V. nemorosum. Grove Mullein. Schrad. n. 12. t. 1. f. 2.—"Leaves acute, crenate, downy; radical ones oblong, tapering at each end; lower stem-leaves lanceolate, contracted at the base; middle ones oblong-lanceolate; upper oblong, slightly decurrent. All the tufts of flowers a little remote. Two anthers oblong."—Found by Mr. Schott in groves in Austria. Biennial. Akin to V. phluaioides, but distinguished by its straight, wand-like stem, four feet high, with a solitary lax clufker, and the narrow elliptic-lanceolate shape of all its leaves, which are of a yellowish green, the radical ones becoming finally rather nacked on the upper surface.

11. V. montanum. Mountain Mullein. Schrad. n. 13. "Hort. Getting. fae. 2. 18. t. 12."—"Leaves downy; radical ones oblong-elliptical, crenate, flaked; those of the stem oblong, rather acute, slightly crenate; uppermost acute, rather decurrent. Flowers nearly fucculent, in rather crowded tufts. Anthers almost equal."—Native of the Pyrenées, as well as of the Alps of Switzerland and Germany. Biennial. Stem eighteen inches or two feet high, erect, simple, clothed, like the reed of the herbage, with yellowish fluffy pubescent. Leaves somewhat wrinkled, reticulated beneath; the radical ones three to four and a half inches long, two to two and a half broad, obtuse, losing part of their thick downiness by age: lower stem-leaves tapering into a footstalk; the red, acute, fucculent, or, about the top of the stem, slightly decurrent. Clusters from about three to six inches long. Flowers nearly fucculent, in tufts more or less crowded; stem solitary. Bracteas ovato-lanceolate, pointed, scarcely exceeding the flowers, except the uppermost. Calyx in V. phluaioides. Cordula moll a V. Thapsus. Two of the flowers more slightly hairy than the rest, sometimes naked; their anthers perfect, but rather larger and more oval than the three others. If cultivated in shady situations, the stem sometimes reaches the height of six feet, and becomes branched in the flowering part; the leaves also grow much larger, of a dirty green, a little polished on the upper side; the clufkers above a foot long, thicker, and more compact. Schrader.

12. V. collinorum. Hill Mullein. Schrad. n. 14. t. 5. f. 1. —"Leaves crenate, downy; lower ones elliptic-oblong, flaked: those of the middle of the stem oblong-lanceolate, rather acute, tapering at the base; uppermost oblong, acute, slightly decurrent. Tufts of flowers distinct. Anthers equal."—Native of hilllocks, and dry gravelly ground, in some parts of the north of Germany. Biennial. Stem two or three feet high, erect, simple, slightly angular in the upper part; reddish below. Leaves soft, wrinkled, downy on both sides; pale green above; hoary and reticulated beneath; radical ones four or four and a half inches long, and half as broad; the rest gradually smaller upwards, the top ones being about an inch and a half in length. Clusters twelve or eighteen inches long, rarely having a branch at the base. Flowers yellow, sweet-scented, resembling V. nigrum, with purple-bearded filaments, and composing numerous little tufts, often near an inch from each other. Schrader. We should suspect this might be a mule progeny of V. nigrum, impregnated by some of the foregoing species; having found near Norwich what has every appearance of being a familiar offspring of nigrum, from the pollen of V. polyverumelum.

13. V. verziformis. Various-flowered Mullein. Schrad. n. 15.—"Leaves crenate, downy; lowermost elliptic-oblong, flaked; those of the stem oblong, acute, slightly decurrent; uppermost pointed. Clusters panicled. Tufts distinct, of few flowers. Anthers equal."—Found in sandy ground near Prague, but rarely. The herbage is clothed with denfe down, of a dirty yellowish-green hue. Stem two or three feet, or more, in height, branched in the flowering part, rarely simple. Leaves rather thick and rugged; radical ones from three and a half to six inches long, one and a half to two and a half broad, most evidently and acutely crenate at the base; those about the middle of the stem only fucculent. Clusters panicked, a foot long, or more. Flowers generally the size of V. phlomoides, slightly fragrant, in rather distinct tufts. Partial flasks half as long again as the calyx. Bracteas ovato-lanceolate, with long points; the inner ones linear, much smaller. Corolla of a rusty red, but variable, the bafe of its smaller segments bearded with the fame kind of yellow wool that clothes the three smaller filaments. Two larger filaments covered entirely with purple wool, fome of which also is seen about the middle of the three others. Anthers kidney-shaped; those of the two longer filaments rather larger, and finally more oval. Pollen white. Sometimes the corolla is found twice its usual fize, and the partial flower-flasks are occasionally more long and slender than above described. Professor Schrader received this from Mr. Tauch, a Bohemian botaniff, as V. rubiginosum of Waldkein and Kitaibel; a species unknown to us, but which he says is widely different.

14. V. ramigerum. Branched Decurrent Mullein. Schrad. n. 16. t. 4.—"Leaves finely downy; radical ones oblong-lanceolate; those of the stem oblong, acute, doubly cre-
nate, half-decurrent; uppermost pointed. Clusters panicked. Tufts diant, many-flowered. Anthers equal."—Native of the duchy of Mecklenburg-Swerin. Link. The habit of this species resembles V. Lycobitis. Root biennial. Stem from four to fix feet high, erect, thick; rather angular, brown, and much branched in the upper part; the branches spreading, angular, and, like the rest of the item, thinly downy. Upper side of the leaves covered with very thin pubescence; under more hoary, and more thickly clothed; the radical, and lower stem-leaves, often a foot or more in length, four or five inches wide, tapering down into the footstalk. Flowers yellow, from fifteen to twenty in each tuft of the principal cluyfer, on flacks twice the length of the calyx; fewer in the lateral clusters; the lower tufts many of them very distinct from each other. Bracteas ovato-lanceolate. Calyx and corolla larger than in V. Lycobitis. Stamens like those of that species. Schrader.

15. V. mucronatum. Pointed-leaved Mulllein. Lamarck Dict. v. 4. 218. Schrad. n. 17; excluding perhaps Tournefort's synonymy. —"Leaves crenate, clothed with dense hoary down; radical ones oblong-lanceolate; those of the item oblong, acute, half-decurrent; uppermost ovate, long-pointed. Spikes panicked. Flowers in nearly feafe heads." Found in Crete by M. Labillardiere. Root biennial. Whole herbage covered with hoary down. Stem, in the cultivated plant at least, from fix to eight feet high, fliight, thick, branched below. Lower leaves one a half, or two feet long, on short flacks, acute; the rest more pointed, and unequally decurrent. Spikes panicked, various in length, their points somewhat incurved. Flowers yellow, rather large, in diffant, many-flowered, feafe heads, hoary with deciduous woolines. Bracteas lanceolate. Filaments all clothed with whitish wool. Schrader.

16. V. finatum. Scollop-leaved Mulllein. Linn. Sp. Pl. 254. Willd. n. 12. Ait. n. 14. Schrad. n. 18. Sm. Fl. Grac. Sibth. t. 227. unpubl. (V. crispum et finatum; Bauh. Hist. v. 3. 860. V. alius; Camer. Epit. 882. Math. Valgr. v. 2. 492. V. Lacinatum Matthiolii; Dalech. Hist. 1302. Φαυλος μελανος; Dioec. book 4. chap. 104. —Leaves ferrated, powdery; radical ones pinnatifid and wavy; the rest undivided, decurrent. Stem panicked, many-flowered.—Native of dry barren exposed situations, in the south of Europe, and north of Africa; a hardly biennial, long known in our botanical gardens, but seldom long preserved. Dr. Sibthorn observed this to be the most common Mulllein throughout Greece and all the circumjacent islands. The root is brown, and rather woody. Herb of a dark green, besprinkled with loose tufts of powdery, hoary, flary pubescence, but far less woolly, or uniformly hoary, than any of the preceding species. The leaves also differ widely from all the foregoing, in being pinnatilat half way to the midrib, with jagged and plaited lobes; the radical ones a span long, on short flacks; the rest smaller, feafe, decurrent; the upper ones very small, ovato-lanceolate, undivided, more decurrent, reflexed; all of them reticulated with veins, rugose; molt hoary beneath. The stem is erect, one a half or two feet high, zigzag, alternately branched from top to bottom, panicked, often tinged with dark purple. Panicle spreading, with copious, hoary, somewhat winged branches. Flowers generally tufted, ilalked, yellow, with Lorpale hairs. Capule small, roundish. The figure of Matthiolus, copied by D.Lechamp and Tabeneruonanmus, is more like the cultivated variety of the following species, but differs in its branching panicked stem.

Scct. 2. Leaves not decurrent.

17. V. pliicatum. Plaited-leaved Mulllein. Prodr. Fl. Grac. n. 524. Fl. Grac. t. 226, unpubl. (V. finatum; 2; Linn. Sp. Pl. 255. V. pinnatifidum; Ait. n. 15, but not of Vahl nor Willdenow. V. gracum fruticosum, folio finato candidissimo; Tourn. Cor. 8. Voyage, v. 1. 128, with a figure; 200.204.205.206. Dioec. book 4. chap. 103.)—Leaves ilate-sinuate, crisped, somewhat crenate, downy on both sides. Spike simple, interrupted, leafy.—Native of the ille of Hydra, and very plentiful about Athens. Root tapering, possibly perennial. Stem ascend, simple, leafy, clothed, like the floage and calyx, with dense, flary, rigid, yellowish woolines. Leaves obovate-oblong, thick; plaited, acute, or crisped at the margin; their upper surface even, and almost without sign of veins; under reticulated; radical ones ilalked, near a span long; the rest seafe, clasping the stem, and gradually smaller upward; floral ones very small and pointed. Spike solitary, erect, a foot long, leaf, or bracteated. Flowers three or four feafe together in the bohom of each bractea, yellow, almost an inch broad. Filaments yellow, bearded from the middle to the fummit. Anters all nearly alike. Capsule ovate, acute, hard, smooth when ripe. The leaves vary in acuteness; and in the garden plant, raised from Dr. Sibthorp's seeds, become more dilated, flattened, and less crisped, resembling the figure of Matthiolus, cited under our preceding species, but the pubescence still remains totally different.

18. V. auriculatum. Auricled Mulllein. Prodr. Fl. Grac. n. 523. Fl. Grac. t. 225, unpubl. (V. orientale maximum candidissimum, ramis candebsum anmblantibus; Tourn. Cor. 8. —Leaves eliptic-oblong, downy on both sides, auricled at the base. Clusters panicked, zigzag.—Native of the island of Samos. Biennial. The whole herb is clothed with dense snow-white down. Stem two feet high, flat, leafy; branched and becoming smooth in the upper part. Leaves crowded, seafe, two or three inches long, bluntly pointed, accompanied by axillary tufts of smaller ones; their upper surface covered with a dense and even coat of wool, hardly marked by rib or veins; the under reticulated, scarcely less densely clothed with a flary coiwbe-like pubescence: their base contracted, but augmented with a rounded lobe at each side, embracing the item. Flowers yellow, ilalked, tufted and bracteated, as in V. phlomoides, but only half as large. Calyx with smooth points. Beard of the filaments yellowish-white. Anthers orange-coloured, nearly uniform. We think Tournefort's synonymy is here rightly applied, though cited by Lamarck and Schrader for mucronatum, n. 15, which must be a different plant from the present, unless it be inaccurately described.

19. V. pinnatifidum. Pinnatifid Mulllein. Vahl Symb. v. 2. 39. Willd. n. 13, excluding the synonymy of Tournefort, which belongs to our n. 17. —Leaves flat, pinnatifid, cut, powdery; nearly naked on the upper side; radical ones ilalked. Stem panicked, many-flowered.—Behaved by Dr. Sibthorn, on the sandy feashore near Yalta, in Botinia. Root perennial, blackish, divided at the fummit. Stem one to two feet high, erect, very much branched in all directions, leafy, round, dark-purple, sprinkled with downy malefines. Radical leaves three inches long, on base ilalks, flat, deeply pinnatifid, cut, wrinkled and velvety; dark green and almost naked above; pale, and powdery with flary hairs, beneath: the younger ones very densely woolly; those of the item not half as large, feafe, not deciduous; leaf divided: floral ones aggregate, spreading, extending for the most part beyond the flowers, which are feafe, crowded, yellow, hoary externally, with orange-coloured filaments. Capsule nearly globose.

VERBASCUM.

(V. blattariz folleis nigrum, amplioribus floribus luteis, apicibus purpurascensibus; Boerh. Luggd.-Bat. v. 1. 228.)—Leaves oblong, somewhat lyrate, doubly crenate, venous, slightly downy. Spike interrupted. Flowers in nearly sessile tufts. Bracteas all linear.—Said to be a native of the south of Europe. The Linnæan specimen grew in the Upsal garden. This species is very little known, perhaps from Linnæus having cited a plate of Miller's, which is as little like his specimen as almost any Verbascum can be, and belongs to V. phlomoides. Hence V. Boerhaavei is admitted, without sufficient grounds, into the catalogue of our garden plants. We have, at least, never seen any thing answering to it. The leaves are a foot long, and almost four inches broad, membranous, copiously reticulated with veins; pinnaatifid, in a lyrate manner, at the bafe; nearly smooth on the upper surface; the under partly clothed with light, deciduous, hairy wool, resembling moulindes. Spikes (whether solitary or numerous, does not appear from the specimen) a foot long, slightly and loosely woollly, of numerous scattered tufts of large yellow flowers with purple filaments.

21. V. hamorrhoidale. Madeira Mullein. Ait. n. 5. Willd. n. 4.—"Leaves ovate-oblong, downy, slightly and minutely crenate; tapering at the bafe. Clusters elongated. Flowers in sessile tufts, without bracteas."—Native of Madeira, from whence it was brought to Kew by Mr. Mallow, in 1777. This is marked as a biennial greenhouse plant, flowering from June to August.


2. V. Thapfu; Linn. Sp. Pl. 1669. (V. Thapfoides; Willd. n. 2. Ait. n. 3. Huds. 90. Schrad. n. 7. "Hoffmann. et Link Lufft. v. 1. 214." V. anguifolium ramulosum, flore aureo, folio crafiores; Bauh. Hift. v. 3. 862.)—Leaves wedge-shaped, oblong; flumped of down on their upper side. Stem angular, panicked.—Native of pastures, road-sides, and waste ground, in various parts of Europe, flowering in July and August. In England it rarely occurs, except on chalky ground in Kent, where it abounds. The root is biennial, scarcely perennial. Stem a yard high, straight and upright, finely downy; copiously panicked at the top. Leaves elliptic-oblong, tapering at the bafe, crenate, reticulated with veins; white and woolly beneath; dark green and slightly downy, or quite naked, above; those at the root, and lower part of the stem, flaked; the reft fettite, not decurrent, all narrow at the bafe. Branches of the panicul racemose, with many woolly tufts of flaked, rather small, flowers, whole corolla is cream-coloured, tinged with yellow. Filaments yellowish, hairy. Anthers orange-coloured, uniform. The variety B, a very celebrated and much disputed plant, is not preferred in the Linnæan herbarium. It is described as the male offspring of V. Lychnitis, from the pollen of V. Thapfus. We have specimens, artificially produced in this manner, by Mr. Garnth, of Garn, Donegalshire. These agree with the Portuguese plant, font by profeffor Link, as his V. Thapfoides. So that we conceive the real V. Thapfus, or Thapfoides, is before us. Yet there are parts of the Linnæan defcription, Sp. Pl. 1670, that puzzle us; such as the purple board attributed to the filaments of V. Lychnitis and of this variety. Our specimens are intermediate, in every refpect, between Lychnitis and Thapfus. Their corolla is yellow. Beard of the filaments white. Upper leaves somewhat decurrent. As the real species of this genus evidently vary before our eyes, there can be little doubt that their mule progenies are still more uncertainly defined.


B. V. nigro-pulverulentum; Fl. Brit. ibid. Leaves ovate-oblong, obscurly pinnatifid, covered on both sides with powdery deciduous wool. Stem round, panicked, much branched.—Native of banks, and the borders of fields, on a gravelly or chalky soil, in England, Auflria, and Switzerland, flowering in July. This beautiful and flately plant is frequent about Norwich, and molt parts of Norfolk; also near Bury, Suffolk; and, according to Ray, at Wollerton, near Nottingham. No species can be more diftinct from the last, with which it has been confounded, even by Linnæus. The root is biennial. Stem three or four feet high, branched from top to bottom in a conical form, covered with innumerable golden flowers, larger than the last, whole filaments are clothed with white hairs, and their anthers are vermilion. The whole herbage is invested with white mealy down, easily rubbed off. Leaves all fettite, thick and woolly; the rational ones numerous, a foot long; upper ones ovate, pointed, clasping the ftem, not decurrent. Mr. Sieber has lent an Austrian specimen of this species, named V. floccosum; but we know not of its having been published under that denomination.

Our variety B is found near Hadleford, and in other parts of Norfolk. The leaves are like pulverulentum, flowers, and purple woolly filaments, like nigrum; fo that, according to the opinion of Linnæus, the latter was the mother of this apparently mule production. We believe it more to be perennial.

V. pulverulentum displays a remarkable degree of irritability, if the stem be firnaily trucf, twice or thrice, with a fmall flick. In the pace of a few minutes, the flowers close, and begin to drop off, all in their turn falling to the ground in the pace of a quarter of an hour, if the weather be warm and still; if otherwife, this quality is lefs perceptible. We were firft informed of it by the very injoinf Mr. Correa de Serra.

24. V. gallicum. Dauphiny Mullein. Willd. n. 11. (V. Chaixi; Villars Dauph. v. 2. 491. t. 13; fynonyms all very doubtful.)—Leaves ovate-oblong, crenate, downy beneath; radical ones flaked; heart-shaped and pinnatifid at the bafe. Stem angular, panicked at the top.—Native of several parts of Dauphiny, in rocky situations. The habit of this plant, its panicule, and the soft durable pubefcence of the backs of its leaves, as well as the shape of fuch as grow on the stem, molt refembe V. Lychnitis; the yellow flowers, purple hairy filaments, as well as the fize, form, and long fofflakes of the radical leaves, which are doubly crenate, rather accord with V. nigrum. But thefe radical leaves are remarkable for a few deep parallel segments at their bafe. We have a specimen from the author himfelf, or his bad figure would little avai us.

The late Mr. Dunn favoured us with a specimen, above twenty years ago, from the Cambridge garden, of a tall Mullein, agreeing with this in molt refpefts; but the lower leaves are taper at the bafe, and fecrely pinnatifid. This came from Poland, and is doubtful V. polandicum of his Hort. Cantab. ed. 5. 45; but unfortunately a name does not make a species, any more than floccosum of the fame ufeful work, fee our n. 23. This Polifh plant feems a mule between
between nigrum and Lychnitis; or it may be a variety of
gallicum.

Ger. Em. 775. Fl. Dan. t. 1088. (V. tertium; Mattth.
Valgr. v. 2. 489.)—Leaves oblong-heart-shaped, stalked,
waived and crenate, slightly downy. Clutter solitary, spikled,
many-flowered.—Native of banks, and road-sides, in most
parts of Europe. With us it occurs chiefly on a chalkly
or gravelly soil, in shady lanes, or on grassy hillocks,
flowering in July and August. The root is perennial. Stem
corect, simple, angular, leafy, brown or purplish, two or three
feet high, rarely branched. Leaves of a fine deep green,
near hoary, though somewhat downy; all stalked, except
the very small upper ones. Clutter very long, slender, com-
 pact, though here and there interrupted, composed of in-
umerably tufted golden flowers, with bearded yellow fila-
ments, and orange anthers. This is altogether a very ele-
genious species.

We received, many years since, from the late Mr. Davall,
specimens and seeds of a variety of this species, having
white flowers. These dried specimens differ little from our
wild plant, except a slight degree of luxuriance, owing to
culture, nor can it be doubted that they are the white-
flowered variety, mentioned by Cafpar Bauhini, and others.
But the far more luxuriant progeny from their seeds, in
lady Amelia Hume's garden, bore large copper-coloured
flowers, almost like V. cupreum, Curt. Mag. t. 1226, which,
but for its solitary flower-flake, we should believe to be our
plant. Such is the Proteus-like nature of this whimsical
genius!

26. V. ferrugineum. Rusty Mullein. Ait. n. 9, ex-
cluding the reference to Andrews. Willd. n. 7.—"Leaves
somewhat villous, wrinkled; those on the stem nearly
hoary, equally crenate; radical ones oblong-heart-shaped,
double crenate."—Native of the south of Europe; said to
have been cultivated, at Edinburgh, by Mr. Sutherland, in
1693, and marked by Mr. Aiton as a hardy perennial, flowering
from May to August. We have no specimen, but we re-
member to have examined an authentic one in Sir Joseph
Bank's herbarium, which proved totally unlike the Greek
plant of Dr. Sibthorp, figured as ferrugineum by Mr. 
Andrews, which is our V. triflata, hereafter described. Such
errors are excusable in such a tribe. We have a notion that the
specimen betrayed some affinity to V. Boerhaavii, n. 20,
but we dare not affirm it.

Grec. n. 819. (V. ferrugineum; Ait. Repof. t. 162.)
—Leaves elliptical, wavy and partly toothed, nearly
smothe; radical ones stalked. Clutter solitary, simple.
Stem leafy.—Gathered by Dr. Sibthorp on mount Athos.
By his means the plant has been introduced into the gardens
of England, where it proves a hardy perennial, flowering moit
part of the summer, and propagating itself copiously by
seed, without requiring any care. This species differs from
all the foregoing, in its very long simple clutter terminating
the stem, at first drooping, but gradually becoming erect,
and, as it flowers, extending itself to the height of five
feet, being composed of innumerably, feathered, solitary,
spreading, almost capillary partial flaks, each three or four
times as long as its accompanying lanceolate bracteas, and
bearing a solitary inodorous flower, an inch broad, of a
peculiarly dull greenish, or yellowish brown, whose filaments
are densly bearded with purple. Sometimes, from luxuriance,
two of these flaks grow together, but each has always its
own bractea. The whole clutter, bracteae, and obtuse calyx,
are clothed with glandular vilacous hairs. The radical leaves
are numerous, on longish flaks, wrinkled, slightly downy,
a little vificid, green, reticulated with veins; their margin
variously waved, or bluntly toothed; those on the stem
are nearly vificid, ovate or heart-shaped, more or less acute.
We cannot perceive any alteration in this plant after cultivating
it for fifteen years, and yet there is scarcely a permanent
specific character, to distinguish it from the following. Can
Tournefort's Blattaria orientalis, bugula flos, 19c. Voy. v. 2.
83, with a plate, acknowledged to be a variable plant, pos-
fibly belonging to our triflata?

t. 125. Curt. Mag. t. 825. Blattaria flore purpureo;
Ger. Em. 776.—Leaves ovate, crenate, smooth, chiefly
radical and feffile. Clutter solitary, simple. Stem nearly
hoary. —Native of Austria, and the south of Europe. A
hardy perennial, cultivated in England ever since Gerard's
time. It is of more humble growth than the last. Leaves
chiefly radical, and nearly seftile, scarcely at all downy;
their margin simply or doubly crenate. Inflorescence
like the preceding, but the flowers are of a dark violet hue,
and the filaments less hairy. Sometimes the stem becomes leafy,
as in Jacquin's figure, and perhaps, as he represents it,
branched; but we have never seen an image of the latter.

ed. 5. 45. Sims in Curt. Mag. t. 1237. Ait. n. 2.
"Leaves oval, seftile, acutely crenate; smoothish on
the upper side. Stem erect, simple. Flowers spikled."—Na-
tive of mount Caucasus. Introduced into England by Mr.
Loddiges, in 1804. A hardy biennial, flowering from
July to September. This has the aspect of several species
in our first section, the flowers being as large as any of those,
yellow, with orange-coloured, partly hairy, filaments;
and nearly seftile, in a long dense spike. But the leaves
are not decurrent, nor, though downy, at all hoary or woolly.
We have seen no specimen.

Dr. Sims has exhibited in Curt. Mag. t. 1226, by the
name of V. cupreum, a Mullein, whose stalked leaves,
racemose flowers, variegated with tawny-buff and purple,
each on a partial flak of confederable length, all appear to
different from a V. ovalifolium, the bracteas, and calyx like-
wise, being altogether unlike the figure of this species, that,
but for our confidence in its excellent cultivator Mr. Lod-
diges, we could scarcely believe it came up from seeds of the
ovalifolium. Perhaps, as Dr. Sims suggests, the parent
may have been impregnated by V. phanecium, or we would
rather say our triflata. When the plant blooms within-doors,
the corolla is pale yellow, with a purple eye. The inspec-
tion of this plant is enough to daunt the most ardent student
of species of Verbascum, and to cause a general mistrust
of them all.

30. V. virgatum. Large-flowered Primrose-leaved Mul-
t. 550. Ait. n. 12. (Blattaria flore ampio; Ger. Em. 
778. B. magno flore; Bauh. Hist. v. 3. 859. Lob. l.c.
564.)—Leaves ovato-lanceolate, toothed, seftile; heart-
shaped at the base; radical ones downy, and somewhat
lustrous. Stem branched. Flowers axillary, on short flaks,
partly aggregate. — Native of Worcefterhire. Biennial,
flowering in July and August. Stem five or six feet
high. Whole plant green, not hoary, though more or less
covered with short, prominent, often forked, glandular
hairs. The calcular bracteas, which resemble those of a prim-
orose, are always so clothed. Those of the stem are very
numerous, acute, toothed or sharply crenate, broad and
rounded at the base, gradually diminishing upwards. Flowers
from the bofoms of many of the upper leaves, large, yellow,

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of the lowermost four, five, or six together, the rest 
foliarily, as are all those of the weaker branches. Flower-
flakes hairy and viscid, seldom so long as the calyx, whose 
segments are lanceolate, acute, and glandular. Filaments 
bearded with purple. Anthers uniform.

taria flore ite; Ger. Em. 778.)—Leaves oblong-lanceo-
late, acute, smooth, but serrated; lower ones bluntish, 
tapering at the base, or falked. Stem branched, racemose. Flower-
flakes much longer than the bracts.—Native chiefly of the 
southern parts of Europe, rare in England, flowering in 
July. Rose tapering, annual. Stem three or four feet 
high, leafy. Leaves much narrower, and more deeply 
serrated or notched than in the last, the upper ones becoming 
gradually more pointed, and smaller, to the bottom of the 
long fimple eflers, where they are replaced by a small, fo-
litary, lanceolate bracta under each flower-flake, as in V. 
trifol and phanecium. The corolla is smaller than the last, 
bright yellow, more or less ftraked with purple. Filaments 
clothed with purple hairs; sometimes the corolla seems to 
become purple all over.

A fupposed variety, with large white flowers, marked 
partially with purplish-brown at the back, is common in 
gardens; coming up from seed, and remaining unaltered, 
through many successive years. This is Blattaria alba, 
Blub. Pin. 241, but we can di cover no specific difference 
between it and the wild or cultivated yellow-dowered kind.

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In the first fort the flowers have an agreeable fcent at a 
little distance; but if smelt too long, or too near, it 
takes leaves pleasant.

The second fort has yellow flowers, which are freaked 
more or less with purple, and is very ornamental, flowering 
from July to November, or even later in mild weather.

It varies with white flowers.

The third fort has a biennial root, and the flowers are of 
a bright yellow colour, and sometimes, but rarely, white.

The fifth fort is remarkable for its straight wand-like an-
gular stem, and cream-coloured flowers, which are produced 
great numbers in a compound clustered terminating ra-
ceme. Sometimes the colour of the flowers is yellow.

The ninth fort has the flowers large in proportion to the 
size of the plant, of a bluee-purple colour, and highly or-
namental, somewhat like the auricula, appearing in May, 
and continue successively in bloom for several months. It 
is a defirable plant to cultivate, especially for decorating 
rock-work.

Method of Culture.—These plants may all be increaded 
by feds, and offsets taken from the roots.

The well-ripened seeds should be fown in the autumn, or 
early spring, in a bed of light mould, or in the borders or 
other parts where they are to remain, covering them lightly 
in. When the plants are up a few inches in height, in 
the bed method, they should be removed into nursery rows till 
the autumn, and they must be removed to where they are to 
remain.

The annual fort is, however, best fown at once where 
the plants are to grow, which is best done in patches.

The offsets of all the perennial forts should be taken off 
in the autumn, or very early in the spring, and be planted 
out where they are to grow. This is better than afterwards 
transplanting them.

They are all hardy plants, that succeed in almost any 
common soil and exposure, in borders, &c.

They afford a good effect in their different foliage, modes 
of flowering, and sweet scent of their flowers, in the large 
borders, clumps, and other parts of pleasure-grounds; the 
larger forts being placed backwards in them.

VERBELIÉT, in Geography, a town of Hungary; 6 miles S.W. of Erlau.

VERBENA, in Botany, among the Romans, was the 
name of some evergreen aromatic shrub, esteemed facred, 
and employed in various solemn ceremonies. Hence it was 
called Hierobotane, and Herba faca. Some derive Verbena 
from verro, to sweep, or cleanse; because the plant might 
be used for cleaning the altars or temples; others from Her-
ben a, corrupted from herba bona, or good herb. But thefe 
rather prove that no good Latin etymology was to be 
found. De This gives a much better, and indeed a direft, 
derivation of the word, from Bullet’s Dictionnaire Celticus, 
where the Celtic name of the plant is said to be Ferfan, 
whence comes, still lefs changed, its English appellation, 
Vervain. The Roman shrub, above alluded to, is sometimes 
thought to have been our Rosmary, which could hardly be the Celtic plant; and we must rely on tradition, 
which has handed down our Common Vervain, the Linnz 
Verbena, with much superflitious celebrity, even to the pre-
rent day, as the Ferfan of our barbarous ancestors. It 
shall, from time to time, makes the fortune of quacks and 
village
VERBENA.

village doctres, whether they aim at notoriety or lucre; and a person named Morley once wrote a pamphlet, recommending the root, to be worn as a charm, in scrophulous disorders, but, as Mr. Curtis remarks, he accompanied it with powerful medicines.—Linn. Gen. 14. Schreb. 20.


Gen. Ch. Cal. Perianth inferior, of one leaf, angular, tubular, linear, with five teeth, one of which is smaller than the rest, permanent. Cor. of one petal, unequal; tube cylin- drical, straight, the length of the calyx, soon dilated and incurved; limb spreading, even half way down into five, more or less unequal, rounded segments. Stam. Filaments four, fetaeous, very short, inserted into the tube of the corolla, and concealing within it, two of them shorter than the rest; anther oblong, incurved. Pist. Germen superior, quadrangular; style fimple, thread-shaped, shorter than the tube; stigma obtuse. Peric. feecally any, except an evanefcent membranous tunic, the calyx containing the seeds, which are either four, or only two, oblong, parallel, crefted, straight at the inner edge, gibbous at the outer. Eff. Ch. Corolla fanned-shaped, rather unequal, curved. Calyx with five teeth. Seeds two or four, with a mem- branous evanefcent tunic.

Obf. We have concurred with many other botanists, in separating from this genus the diandrous species; which moreover have only four teeth to their calyx, and never more than two teeth. (See Stachyclus.) But it does not seem necessary to retain also Zappania, distinguished by its two teeth, and more dense inflorescence, which is as truly epicate in as acknowledged Verbenas.

1. V. mexicana. Mexican Vervain. Linn. Sp. Pl. 28. Willd. n. 6. Ait. n. 1. (V. mexicana, trachelii folio, fructu aparines; Dill. Elth. 407. t. 302.)—Leaves ovate, acute, hairy. Stalks. Calyx of the fruit reflexed, hispid, of two round lobes. Seeds two.—Native of Mexico. Cultivated in Sherard's garden in 1726. A flowery plant, flowering in summer. Stem herbaceous, two or three feet high, square, leafy, rough and furrowed, branched in the upper part. Leaves opposite, on short stalks, strongly ferrated like those of a common nettle, rough with minute rigid bristles. Stalk terminal, falked, crefted, long and slender; lax and interrupted in the lower part. Flowers very numerous, small, pale purple. The calyx when in fruit becomes falked, recurved, and is at all times hoary with bristly hairs. We are not certain that this species has always four perfect flowers. Two of the anthers are most visible m the mouth of the tube.

2. V. flabadosifolia. Oval-spiked Vervain. Linn. Sp. Pl. 27. Willd. n. 7. Ait. n. 2. (V. n. 4. Browne Jam. 116. t. 3. f. 1.)—Leaves ovate, imbricated, ovato-cylindrical. Leaves lanceolate, wavy, toothed, clothed with depressid hairs; hoary beneath. Stem thorny.—Native of the West Indies. Stem spreading five or six feet, woody, but not lathing above two or three years. The leaves are flaked, two or a half inches long, acut, reticulated with veins, flat, not plaited, as the erroneous engraving, after Plumer's drawing, is made to express, but wavy at the margin, with small acute teeth; the upper surface is covered with rigid deprefled bristles; the under with foffor hairs. Stalks hairy, an inch long, about thicke the length of their falks. Of the flammas, feds, or colour of the flowers, we are ignorant.

3. V. globifora. Round-headed Vervain. L'Herit. Stirp. 23. t. 12. Willd. n. 8. (Nepeta maxima, flore albò, fpicis habitiari; Sloane Jam. v. 173. t. 108. f. 1.)—Spikes denfe, imbricated, roundifh-ovate. Leaves ovate, crenate, rhugo, downy. Stem thorny, creft.—Native of South America; perhaps, as L'Heritier thought, of Buenos Ayres. We have from thence a specimen of what like it, but smaller in every part, possibly because it is a wild one. L'Heritier's plant was cultivated at Paris, being a ferd of humble growth, of a strong disagreeable odour. The leaves are shorter and more ovate m the leaf, differing also from that species in being finely and closely crenate, not wavy or toothed. The spikes also are much shorter, nearly globule. Flowers white. Stamens four, all perfect. Seeds two.

4. V. javanica. Java Vervain. Burm. Ind. 12. t. 6. f. 2. Willd. n. 9. (Zappania javanica; Poiret in Lam. Dict. v. 8. 840.)—Spikes denfe, imbricated, cylindrical. Leaves elliptic-lanceolate, crenate, finely downy.—Native of Java. Stem fcapitif, roundifh, clothed, like the reft of the plant, with fine, short, clofe hairs. Leaves an inch and a half long, acute at each end. Flowers in short cylin- drical spikes, on axillary, often opposite, falks, the length of the leaves. Linneas fuppolfed this not to be different from V. flabadosifolia, but they are very unlike in the margin of their falks, as well as in general appearance.


6. V. bonariensis. Clutter-flowered Vervain. Linn. Sp. Pl. 28. Willd. n. 11. Ait. n. 5. Poiret in Lam. n. 13. (V. bonariensis altissima, lavandula canariensis filipic multi- pliea; Dill. Elth. 406. t. 300.)—Spikes aggregate, tufted, level-topped. Leaves lanceolate, felfile, clapping the stem.—Native of Buenos Ayres, from whence it came into She- rard's garden; and is still fecn in fonie curious collections, being a hardy biennial plant, flowering throughout autumn. The stem is often fix feet high, fquare, rough, clothed with long, harif, closely ferrated leaves, and terminating in copious tufts of blue flowers, made up of short spikes, on very long, opposite, panicled falks. Seeds four, linear, fparated, curiously rough on the inner fide.

7. V. rugosif. Rugofe Vervain. Willd. Elth. 633. Pursh n. 8. (V. angustifolia; Michaux Barel-Amèr. v. 2. 14. Ait. n. 7. Poiret in Lam. n. 1.)—Spikes thread-shaped, folitary, terminal or axillary. Leaves lanceo- late, sparingly ferrated, furrowed with veins; tapering at the bale.—In dry fof, by road-fides, particularly on lime- bone, from Pennsylvania to Tennesfie, flowering from June...
to August. Perennial. Not above a foot high. Flowers fine blue.—*Purp.*

8. V. *clavata.* Whorled Vervain. "Fl. Peruv. v. 1. 21. t. 33. f. B." Poiret in Lam. n. 15.—Flowers in umbellate heads. Uppermost anthers club-shaped at the back. Leaves whorled, wedge-shaped, undivided or lobed.—Native of Peru, in sandy situations, flowering in August and September. The *flae* are numerous, erect, much branched, hoary; raked below. Leaves five or six in each whorl; fovee-entire, linear-lanceolate, revolute; others divided or three-cleft, hardly an inch long, moderately downy, a little fringed. *Flowers* terminal, sessile, collected into a head in the form of an umbel, each with one or two linear, oblong, downy, fringed *bracteas.* *Corolla* purplish-red. *Stamens* four. Anthers heart-shaped, furnished by a small club-shaped appendage. *Seeds* four. Poiret.

9. V. *hipida.* Brilly Vervain. "Fl. Peruv. v. 1. 22. t. 34. f. A." Poiret in Lam. n. 16.—Spikes tereate, cylindrical. Leaves obvate or oblong, undivided or somewhat three-cleft, deeply ferrate, half-bracing the *flae.* —Native of Peru, in dry chalky ground, flowering in March and April. The *flae* are numerous, herbaceous, spreading, hispid, a foot high, branched, quadrangular. Leaves opposite, sometimes tereate, hispif, contracted, and in a manner decurrent, at the base, wrinkled, strongly veined, hispid, with deep, tooth-like, often unequal, ferratures; their length two or three inches, breadth one inch. *Flowers* much crowded, in terminal, flaked *spikes,* generally three upon each branch, thick, cylindrical, two or three inches long, the lateral ones much shorter. *Bracteas* foliary to each flower, half-lanceolate, fringed. *Calyx* purplish. Tube of the *corolla* purple; limb pale blue. *Stamens* four. Seeds four. Poiret.

10. V. *baffata.* Halberd-leaved Vervain. Linn. Sp. Pl. 29. Willd. n. 12. Ait. n. 6. Pursh n. 4. (V. altissilama americana, *ipic* multipliea, urtice folis anguifis, floribus cæulescis; Herb. Parad. 242, with a plate.)—Spikes panicled, linear, acute. Leaves lanceolate, pointed, deeply and doubly ferrate; lower ones hastate, or pinnatifid.—By road-fides in wet situations, and on the banks of rivers, from Canada to Carolina, perennial, flowering in July and August. From two to five feet high. *Flowers* purple, sometimes white. *Purp.* The leaves are three inches, or more, in length, rough to the touch, like a fine file. *Spikes* two inches long, becoming longer, and lax, after flowering.

11. V. *triphylla.* Lemon-scented Vervain. L'Herit. Stirp. 21. t. 11. Willd. n. 13. Ait. n. 4. Curt. Mag. t. 307. (Zappania citrodora; Poiret in Lam. Dict. v. 8. 845.)—Spikes panicled. Leaves lanceolate, minutely and diffusely toothed, three in a whorl. Stem shrubby.—Native of Chili, where it was found by the unfortunate Dombyr, (see that article,) and introduced into the gardens of Europe. In Italy, Spain, and the south of France, this valuable shrub is quite naturalized, and its delightfully scented leaves, having the flavour of lemon, are useful in fevers, and other inflammatory disorders, being taken as tea, like balm, hyssop, &c. With us it is a hardy greenhouse plant, flowering in summer. The leaves are of a light bright green, roughish, two inches long, apparently entire to a flight observer, soon drying, and fragrant for a long time afterwards if rubbed. *Flowers* small, pale lilac, in aggregate, panicled, loose, terminal spikes. The specific name of this plant is not well chosen, for so many Peruvian and Chili shrubs having three leaves in a whorl. Ortega, who thought it a new genus, called it *Alcyja citrodora,* and the French retain the latter appellation, as if *citrea* would not far more elegantly express their meaning. But who shall weed the rank wilderens of recent botanic names? In which the venerable fabric reeled of *Lamêna* is almost hidden, like the temples at Paestum, before they were cleared.

12. V. *virgata.* Wand-like Vervena. "Fl. Peruv. v. 1. 20. t. 32. f. B." (Zappania virgata; Poiret in Lam. Dict. v. 8. 845.)—"Spikes assially, ternate, flender. Flowers whorled. Leaves ovate, acute, crenate."—Native of the extensive forrests of Peru, flowering in August and September. A branching *flurb,* ten or twelve feet high, with a very agreeable scent. Leaves flaked, opposite, spreading, three or four inches long, an inch and a half broad; rough on the upper side; veny, wrinkled and downy beneath. *Spikes* generally three from the bosome of each leaf, composing a spreading panicle. *Calyx* downy. *Corolla* white. *Seeds* two. Poiret.

13. V. *lappulacea.* Bur Vervain. Linn. Sp. Pl. 28. Willd. n. 14. Schwart Obf. 16. Jacq. Obs. fafe. i. 37. t. 24. (Sorodonia floribis ipicatis purpurascensibus pentapetaloidis, femine unico majori echantio; Sloane Jam. v. 1. 174. f. 110. f. 1.)—Clusters solitary, lax, simple. *Calyx* of the fruit inflated, roundish. Seeds oblong, tuberculated. Leaves ovate, acute, sharply ferrate.—Native of waife ground and flaty places, in the Wt. Indies. The *flae* are herbaceous, two or three feet high, branched, leafy, square, smooth, hollow. Leaves flaked, two inches long, slightly brilily. *Clutters* from the forks of the stem, long, wax, and flender, of numerous, dilant, little, pale-blue *flowers,* on short partial falks. *Calyx* downy; as the fruit ripens becoming globose, inclosing the four hard *seeds,* which are closely combined, beft externaly with four thick spines. Dr. Spratt, in his *Flora Ind. Oct. 1000,* points out the affinity of this species to his own genus *Ghina,* (fee that article,) founded on *Verbenà cura* sffonis of Linnaeus. The fruit of *Ghina,* however, is a drupa, with a nut of four cells.


15. V. *caroliniana.* Carolina Vervain. Linn. Sp. Pl. 29. Willd. n. 16. Ait. n. 8. Pursh n. 9. (V. carolinensis, melilife folio, afpero; Dill. Eth. 407. t. 301.)—Spikes aggregate, lax and flender. Leaves elliptic-lanceolate, acute at each end, ferrated, nearly feffile; rough above; somewhat downy beneath.—In dry sandy fields, from Carolina to Georgia, perennial, flowering in June and July. *Purp.* Herb eretic, branched, somewhat hairy. Leaves harsh, with minute brily tubercles, on the upper side, an inch and a half or two inches long, unequally, not deepely, ferrated. *Flowers* pale red, very small. *Calyx* brilily, twice the length of the minute, ovate, pointed *bracteas.* Seeds four, oblong.

16. V. *urticifolia.* Nettle-leaved Vervain. Linn. Sp. Pl. 29. Willd. n. 17. Ait. n. 9. Pursh n. 6. (V. folio urtica anguinulare; Rivin. Monop. Irr. t. 57. V. recta canadenis; Morif. feé. 11. t. 25. f. 3. V. peregrina, folis urticae; Dodart Mem. 627. t. 35.)—Spikes aggregate, lax and flender. Leaves ovate, acute, ferrated, flaked, hairy on both fides.—About road-fides and cultivated grounds, from New England to Carolina, perennial, flowering from June to September. *Flowers* very small, white.

VERBENA.
white. Purp. Akin to the half, but taller, and clearly distinguished by its flaked, coarsely ferrated, nettle-like leaves. Bracteas ovate, slightly pointed, shorter than the calyx.

17. V. sertae. Stout Upright Vervain. Venten. Hort. Cell. t. 53. 1805. Exe. Enum. 633. Pursh n. 10. Donn Cant. ed. 5. n. 10. (V. rigens ; Michaux Boral.-Amer. v. 2. t. 14. V. paniculata ; Donn Cant. ed. 5. n. 8.)—Spikes aggregate, corymbose, straight, denuded, oblong. Bracteas taper-pointed, as long as the calyx. Leaves ovate, on short flanks, unequally ferrated, downy and hoary on both sides.—Native of Carolina, and the Illinois country, perennial, flowering in July and August. Purp. A tall, stout, hoary plant, whose stiff round stem is clothed with numerous, coriaceous, veiny leaves, an inch and a half to two inches long, acute, coarsely ferrated; molt downy beneath. Spikes from two to four inches long, in strong plants numerous, crowded at the top of the stem, in a corymbose manner, hoary, imbricated. Bracteas ovate, with taper points, generally exceeding the calyx, whose teeth are also long and slender. Corolla large, of a violet blue.

18. V. diffusa. Spreading Vervain. Poiret in Lam. n. 14. Pursh n. 7.—Spikes very long, lax, panicled, widely spreading. Bracteas acute, about as long as the calyx. Stem erect, much branched. Leaves ovate or oblong-lanceolate, late, ferrated, somewhat downy.—Native of North America; cultivated at Paris, according to Poiret, on whose authority, Mr. Pursh gave this species a place in his Flora. He speaks of it as having a near resemblance to V. urticaefolia, with very small, somewhat purple, flowers. We have seen no specimen.

19. V. paniculata. Compound-panicled Vervain. — Lamarck lllustr. t. 57. Diét. n. 8. Pursh n. 5.—Spikes compound, in a corymbose panicle. Leaves lanceolate, deeply ferrated and jagged; tapering at the base; harsh on both sides, slightly downy.—In the natural meadows of the high mountains of Virginia and Carolina, perennial, flowering in July and August.—From four to six feet high. Flowers very numerous, purple. We have not seen the Paris garden a specimen marked V. paniculata of Jullieu, which answers well to the description by Poiret in Lamarck’s Dictionary, and is doubtless what they all intended. Our specimen indeed is but eighteen inches high, and the leaves are about two inches, not four or five, in length. They taper down into short flanks, and are not much pointed. Both surfaces are rough like a file, as is likewise the square stem, which terminates in a corymbose panicle, of compound or branched spikes. The bracteas are ovate, with a fine point, shorter than the calyx. Corolla rather small.—What we received from the late Mr. Donn of Cambridge, as his V. paniculata, is not this, but our V. sertae, n. 17.

20. V. corombyosa. Corymbose Chili Vervain. "Fl. Peruv. v. 1. t. 22. t. 33. f. A." Poiret in Lam. n. 16.—Spikes aggregate, corymbose. Leaves sessile, triangular-heart-shaped, wrinkled, harsh, deeply ferrated, pointed.—Native of Chili, in wide ground among rubbish, flowering in November and December. The stems are erect, herbaceous, square, a foot high, with opposite branches. Leaves about an inch and a half in length, dirty, brownish, veined, almost triangular. Flowers at the summits of the stem and branches, opposite, three-leaved, the lowermost axillary, all forming a corymb of oblong spikes of violet-coloured flowers. Bracteas lanceolate, taper-pointed. Seeds four. Poiret.

21. V. officinali. Common Vervain. Linn. Sp. Pl. 29. Wildl. n. 20. Fl. Brit. n. 1. Engl. Bot. t. 757; Curt. Lond. Jard. t. 41. Woodv. Suppl. t. 218. Fl. Dan. t. 628. Brown n. 1. (V. communis; Ger. Em. 718; Vervain; Rivin. Monop. lrr. t. 56. Vervainsa; Mattth. Valgr. v. 2. t. 399. Camer. Epit. 757.—Spikes slender, panicled. Bracteas ovate. Leaves deeply cut. Stems mostly solitary, somewehat prickly. Native of warm ground, and road-sides, in most parts of Europe, common in England, flowering in July. We have received it among the first specimens, sent from New South Wales, in 1792, by Mr. John White. Mr. Brown also saw it there, and in the tropics. Vervain is a native of New Holland. The root is perennial, woody, branching, sending up, from each of its summits, a solitary stem, about a foot high, curved at the base, acutely quadrangular, smooth, except a greater or less proportion of minute hooked prickles. Leaves variously jagged, somewhat hairy, tapering at the base into a broad footstalk. Flowers small, pale lilac, in acute spikes, at first denfe, but becoming long and lax as the seeds ripen. Bracteas ovate, half the length of the calyx. Seeds while young enfolded in one common skin, or tunic, almost obliterated as they ripen, when each appears marked at the summit with excavated dots. This is the plant used by Mr. Morley to cure the king’s evil, by hanging its root round the neck. Curtis has very justly expounded his pretensions, and his affected disinterestedness. Ray long ago remarked that the feisable qualities of the Vervain were too flighty to make its many boasted virtues credible. Nevertheless it is still used, and we believe will do no harm; unless the patient be debilitated by this means to neglect what might be more serviceable. Dioscorides, whose V. officinalis, or Holy Herb, this is, first published its powerful use, in incautious, and yet he has been believed for its other qualities.


24. V. pyriflora. Prostrate Vervain. Ait. n. 15.—"Spikes thread-shaped, solitary. Calyx twice as long as the flowers. Leaves deeply ferrated, cut."—Found by Mr. Meares, on the west coast of America, and introduced in 1794 into Kew garden. It is perennial and hardy, flowering in June and July.


VERBENA.
ground in Peru, flowering from March to May. The whole plant is bristly, two feet high, branched. Leaves sessile, half clasping the stem; contracted at the base; divided almost half way down into three large, oblong, serrated lobes, rough and hispid on both sides, two or three inches long, and about as broad. Spikes short, terecinate. Flowers blue. Poiret.

26. V. bracteata. Bracteated Vervain. Michaux Boreal-Amer. v. 2. 13. Willd. Enum. 634. Pursh n. 2. (Zappania bracteata; Poiret in Lam. v. 8. 843.)—Spikes solitary, with lanceolate spreading bracteas, longer than the flowers. Stem decumbent. Leaves laciniate, very hairy. —Native of Illinois and Kentucky, perennial, flowering in July. Flowers light purple. Pursh. A small very hairy plant, said to have some resemblance to V. supina, n. 23, but the long wide-spreading bracteas are peculiar. The stems are from six to nine inches in length. Spikes from the ends, as well as the forks, of the branches, two or three inches long. Seeds only two.

27. V. Aubletia. Roéé-coloured Vervain. Jacqu. Hort. Vind. v. 2. 82. t. 176. Linn. Suppl. 86. Willd. n. 18. Al. n. 11. Pursh n. 1. Curt. Mag. t. 358. (Buchnera canadenis; Linn. Mant. 88. Aublet; Journ. de Rozier, v. 1. 287. t. 2. Erinus lacinatus; Linn. Sp. Pl. 879. Lychnis debena tenuifolius folio; Feuill. Peruv. v. 3. 35. t. 25.)—Spikes capitato, foliatory; cylindrically after flowering. Bracteas awl-shaped, as long as the taper-pointed calyx. Leaves three lobed, cut. Stem erect.—Native of Carolina and Georgia, flowering in June and July. The seeds appear to have been brought to Europe by M. Richard, senior, and were sent by him to Kew garden, in 1774. The plant is biennial in our climate, requiring the shelter of a frame in winter. The herbage is green, roughish to the touch. Stem a foot high, or more, square, leafy, branched from the bottom. Leaves stalked, broadish, variously cut. Flowers larger than most of the genus, of a fine pink or crimfon, numerous, in stalked heads, which afterwards become thick, close, cylindrical spikes. The bracteas are very narrow, permanent, downy as well as the calyx, whose teeth are also very long and slender. Seeds four, oblong; furrowed in the lower, rectangular in the upper, part. This is undoubtedly a genuine and most obvious Verbenae, nor can we account for the error of Linnaeus, who, with the ripe naked seeds on his original specimen, and the long-pointed calyx, referred it to Buchnera. It was called Aubletia, either by its discovery, or by La Tourrette, who lent a specimen and figure to Linnaeus, by which the latter corrected his mistake. Their intention was to honour Aublet, whose name was sometimes written Oblet. With respect to the other Linnean synonym, hitherto neglected by most of those who have noticed this Vervain, it depends entirely on Feuilleé's plate and description, which led Linnaeus to refer this, as well as the following species, to Erinus, without seeing a specimen of either. Lamarck, Poiret, and Willdenow, apply the latter synonyms to their V. erinoides, Willd. Enum. 634, which is V. multifida, Fl. Peruv. v. 1. 21. t. 33. f. C.

28. V. veronicifolia. Speedwell-leaved Vervain. (Eurinus peruvianus; Linn. Sp. Pl. 879. Lychnis veronicéfolia folio, flore comeceo; Feuill. Peruv. v. 3. 36. t. 25.)—Spikes capitato, foliatory, cylindrical after flowering. Bracteas awl-shaped, as long as the taper-pointed calyx. Leaves ovate, serrated, acute at each end. Stem erect.—Found by Feuillée in fields on the north side of the river de la Plata, in Paraguay. This seems to agree with the halt in the flowers and inflorescence, differing only in the simple undivided form of the leaves; but whether that difference be constant and specific, can be determined by future comparison of the two plants. The other synonym of Feuilleé having been misidentified, and, as we premise, distinguished without reason from V. Aubletia, we have here recorded this for the consideration of those who may hereafter meet with materials for solving our doubts.

VERBENA, in Gardening, contains plants of the hardy, herbaceous, and tender exotic kinds, among which the species cultivated are, the Indian vervain (V. indica); the trailing vervain (V. supina); the betony-leaved vervain (V. oru- bica); the Jamaica vervain (V. jacaeincifis); the Mexican vervain (V. mexicana); the globe-flowered vervain (V. globiflora); the clustér-flowered vervain (V. bonarienis); the half-ferted vervain (V. haflata); and the three-leaved vervain (V. triphiylla).

And there are many other species that may be cultivated for variety. The first fort is an annual plant with a purplish flower. In the second fort the flowers are of a light blue colour, and large. The third arises with a shrubby stalk, and the flowers grow in thick terminating spikes about a foot in length; are large, and of a fine blue colour. The fourth fort is three or four feet high in the stem, and much branched, the flowers blooming in succession, beginning at the bottom, but very few together, violet-coloured, with the throat and long slender incurved tube of a white colour. The seventh has four-cornered stalks, which rise to the height of five or six feet, the flowers of which are blue, appearing late in summer. The eighth has many four-cornered furrowed stalks, which are terminated by spikes of blue flowers, in clusters, which appear in August. The ninth is a very sweet-smelling under shrub, and very pleasant, like that of the lemon.

Method of Culture.—These plants are not raised without difficulty or attention. They may be increased by seeds, which should be sown in pots, or on a hot-bed, in the early spring, plunging the pots in the bed. When they are in a state of growth to remove, they should be planted in separate pots, and replunged in a fresh hot-bed, shade being given till they have taken new root, when they must have the management of tender plants of the exotic kind. The annual forts should be kept in the stove, or a glasses cafe, where there is a bark-bed to plunge them in, when too large to be continued under the frames; and the perennial forts may be placed simply in such cafes, air being admitted in a cautious manner.

Of these kinds, such as do not afford good feeds in this climate, may be increased by planting cuttings in the summer months in pots of good mould, placing them in the bark-bed of the stove, where they may be preserved many years. The eighth fort may be raised from seeds by fowing them in the autumn, and by parting the roots and planting them out at the same time. They succeed best on a light loamy soil, and are so hardy as to thrive in the open air. The ninth fort may be readily increased, by planting cuttings in the spring or autumn in pots of good mould. It should have the protection of the greenhouse or a glasses cafe. They afford variety among other potted plants in the greenhouse and stove, and some of the hardy forts occasionally in the open ground.

VERBÉNACA, in Botany, with the earlier botanists among the moderns, and even with Pliny himself, seems to be synonymous with VERBENA, see that article. Linnaeus indeed uses this word as the specific name of a common Englishe species of Salvia, not supposed by any body, that we can find, to have been the so much honoured Verbénaca of the Romans, see Pliny, book 25. chap. 9. He was led to
VERBENICO, in Geography, a town of the island of Veglia, with a small harbour, containing about 1200 inhabitants.

VERBERATION, formed from verbera, I smite, in Phyt生机, a term used to express the cause of found, which arises from a verberation of the air, when brisk, in divers manners, by the several parts of the sonorous body first put into a vibratory motion.

VERBÉRIA, in Geography, a town of France, in the department of the Oise; near it is a medicinal spring; 9 miles S. of Compaigne.

VERBÉSINA, in Botany, according to Ambrosius, who is followed by Linnaeus, Phil. Bot. 175, originated in Verbesina; which latter arose from the leaves being divided like a pair of forceps. Professor Martyn, however, derives Verbesina from λεύκα, food, or fodder; the chief objection to which is, that the plants of this genus do not appear to be serviceable, or to have been recommended, for any such purpose. De Theis confides the above name as synonymous with Verbenia, because, as he says, the undulated obtuse leaves of Verbesina alata resemble that plant; but this explanation is unauthorized.—Linn. Gen. 437. Schreb. 570. Willd. Sp. Pl. v. 3. 2221. Mart. Mill. Dict. v. 4. Ait. Hort. Kew. v. 5. 120. Pursh 564. Juss. 188. Lamarck Illutr. t. 684. Gartn. t. 17 I. (Sylnebela: ibid. t. 17 I.)—Chiós and order, Styngeácha Polynaginá-super-flua. Nat. Ord. Compeata opposiféli. Linn. Cymbrifòræ, Juss.

Gen. Ch. Common Calyx concave, of several oblong, channelled-concave, erect, more or less equal leaves, in a double row. Cor. compound, radiated; that of the numerous perfect florets in the disk funnel-shaped, five-toothed, erect; of the few (about five) female florets of the radius ligulata, either broad and three-cleft, or very narrow and undivided. Stem, in the perfect florets, Filament five, capillary, very short; anthers united into a cylindrical tube. Pfl. in the same florets, German rather oblong; style thread-shaped, the length of the flaments: fligmas two, reflexed; in the female ones, the same. Peric. none, except the unchanged calyx. Seeds in all the florets alike, solitary, thickish, angular, crowned with a chaffy crown of two, or more, acute teeth. Recept. covered with deciduous chaffy scales.


Obf. We have shown, under the article PIKEATHINA, that the genus established by Gartn., with that name, is a real Verbesina, though a Siegebeckia of Linnaeus. The brilliantly-pointed crown of the seed in the genus before us being wanting in V. Taverna, alta, and profeta of Linnaeus, the two latter are removed to Eclipta, and the first to Taverna; see those articles. The number of radiant florets is uncertain in many species.

Seef. 1. Leaves alternate. 1. V. alata. Wing-falked Verbesina. Linn. Sp. Pl. 1270. Willd. n. 1. Ait. n. 1. Curt. Mag. t. 1716. (Cannabina indica, folis integris, alato caule; Magn. Hort. 40. t. 8. Chrysothamnem americanum, caule alato flore aphylo globo antalian, foliis barcarolais; Commel. Hort. v. 1. t. 3. C. corallaviacum, alato caule, floribus aurantius; Herm. Parad. 125, with a plate.)—Leaves alternate, decurrent, undulated, bluntnish. Brilles of the seed two, very unequal.—Native of South America and the West Indies. Cultivated ever since the beginning of the last century in our floues, where it flowers most part of the summer, and being not uncommon, has been figured in more publications than we have thought necessary to quote, but which are cited by those mentioned above. The plant is perennial, hoary when young, erect, branched, three or four feet high, readily known by its winged stem. Leaves three or four inches long, veiny, wavy and toothed. Flowers of a very rich orange-colour, almost globular, three quarters of an inch broad, on long naked, alternate, often purplish, flalks, at the ends of the branches. Florets of the radius, in our gardens at least, numerous. Seeds bordered with a membrane; their terminal awl-shaped, rigid, one much longer than the other, incurved and hooked. Linnaeus has hinted that this species differs so much in habit and structure from the rest, as almost to constitute a distinct genus. Gertner makes it the type of Verbesina, and yet affirms that this genus is only Spilanthus with a radius. Indeed these two genera do run very much into each other, and the radius occasionally appears or vanishes in several species of each, nor are the bristles of the seed perhaps strictly constant even in the same species. We fearfully think the difficulty would be much lessened by removing V. alata to Spilanthus, fee that article; though such a measure might be sanctioned by the habit of the plant. The remaining species, very various in habit, have not been sufficiently examined or compared to allow of a clear decision respecting them, and we must take them in general as we find them.

2. V. chinesis. Chinese Verbesina. Linn. Sp. Pl. 1270. Willd. n. 2—Leaves alternate, falked, ovato-lanceolate, obtuse. Seed-down with four bristle points.—Brought by Olbeek from China. Stem shrubby, with round, leafy, downy branches. Leaves an inch and a half long, bluntly serrated, finely downy. Flowers: the size of the preceding, yellow, with numerous short rays, growing about the ends of the branches, on long, thinly leafy, nearly simple, flalks. Seeds slender, quadrangular, each crowned with a jagged membrane, and four small, erect, straight bristles.


4. V. virginia. Wool-falked Verbesina. Cav. l. v. 3. 38. t. 275. Willd. n. 4—Leaves alternate, lanceo- late, serrated, tapering at each end. Flowers corymbose. —Native of Mexico. Perennial, flowering in the garden at Madrid in December. Stem four inch high, erect, wame-like, leafy. Leaves a span long, tapering down into the feet-like. Flowers yellow, an inch broad, with about two elliptical radiant florets. Seeds black, elliptical, bordered with a white hish, and crowned with two small, erect, often deciduous bristles.

5. V. mutica. Parsley-leaved Verbesina. Linn. Sp. Pl. 1273. Willd. n. 5. Ait. n. 2. Swartz Obs. 314. t. 8. f. 1. (Bident apicalita; Linn. Am. Acad. v. 3. 425. Chrysothamnem paluster minimum regionis, apicis foliis; Shone Jam. v. 1. 263. t. 125. f. 3. C. humile, ramunculai foliis; Plum. Ic. 75. t. 65. f. 2.)—Leaves alternate, deeply three-cleft, toothed; radical ones obovate, serrated. Stem prosthente. Seeds without awn.—Found in rather moist meadows, and by waysides, in the West Indies. Swartz. Miller cultivated it in 1768, from seeds sent by Houttoues, from whom Gronovius received specimens in 1732.
species, having no brilly crown to the feed, belongs rather, as Dr. Swartz observes, to Anthénes; but the habit is somewhat adverte. The flėms, a span long, spread every way on the ground, and are leaffy, more or less branched. Leaves much divided and toothed; glaucous beneath. Flowers small, yellow, with numerous radiant florets. Red bordered.

6. V. Bofwallea. Fennel-leaved Verbesina. Linn. Suppl. 379. Wild. n. 6.—Leaves alternate, three-leaf, with many capillary segments. Stems profuse. Seeds hairy, with two bristles. Female flore foliary.—Native of the East Indies. Used by the natives in fomentations. An annual, herbaceous, decumbent plant, having the taft and smell of fennel; the divisions of the leaves also resembing that herb, only shorter and fewer. Flowers mostly foliary, axillary or terminal, falked. Calys-scales few, broad, elliptical, with a membranous edge. Florets five or six only; of which one is ligulate and female; the reft four-leaf. Seeds comprefled, black, clothed with fhaggy golden hairs, and crowned with two black bristles. Linneus, or rather Köning, who fent him this plant, appears to have had an intention of making it a new genus, by the name of Bofwallea, which might have been done without violence of nature. We are not informed of the origin of the name.

7. V. gigantes. Great Pale Verbesina. Jacq. Coll. v. 1. 53. Lc. Rar. t. 175. Wild. n. 7. Ait. n. 3. Swartz Ind. Occ. 1368. (Bidens frutecens, fphonolii folio et facie; Plum. Lc. 41. t. 31.)—Leaves alternate, pinnatifid, finnated, toothed. Stem thrifty.—Native of mountainous thickets, in Jamaica and other parts of the West Indies, flowering in December and January. Though often seen in our more curious flow collections, it very rarily flowers. The flėm is ten or twelve feet high. Leave deep pinnatifid; downy beneath; the lower ones twelve to eighteen inches long. Flowers small, white, or fleff-coloured, numerous, in large, corymbofe, terminal panicles. Seeds, according to Jacquin, crowned with a foliary brifite.

8. V. Coreopûs. Alternate-leaved Winged Verbesina. Michaux Boreal.—Amer. v. 2. 134. Pursh n. 3. (Coreo- fûsis alternifolia; Linn. Sp. Pl. 1283. Wildl. Sp. Pl. v. 3. 2257. Jacq. Hort. Vind. v. 2. 50. t. 110. Chrysanthe- mun virginianum, caufe alato, ramofius, flore minore; Pluk. Phyt. t. 159. f. 3. C. caule alato, virginianum, &c.; Morif. feet. 6. t. 7. f. 75. 76.)—Leaves alternate, lanceolate, ferrated, falked. Stem winged. Panicle corymbofe, leaffy.—On the mountains of Virginia and Carolina; perennial, flowering from July to September. From three to five feet high, the flėm furnifhed with feveral narrow, green, entire, leafy wings. Leaves four or five inches long, roughfed on the upper fide; the lower ones opposite, or three or four in a whorl; but the greater part are alternate. Flowers ferial, in a downy-falked branched panicle. Calys widely spreading, almost flat, fo that the disk becomes nearly globose, fubtended by four or five orange-coloured, spreading, ligulate florets, near an inch long. Seed crowned with two short briftles. This species is naturally very nearly allied to V. Siegfèckia, hereafter defcribed, fee n. 11, nor can they be genericafy feparated.

Michaux and Pursh mention a white-flowered variety, always deftite of rays, found by the latter on the coaft of Carolina, which is Athanaia paniculata, Walt. Carol. 201. This Mr. Pursh ftrongly fupiceps to be a very diftinft species.

9. V. bilanbboides. Sun-flower Verbesina. Michaux Boreal.—Amer. v. 2. 135. Pursh n. 4.—"Leaves alternate, broadly lanceolate, acute, slightly toothed; rough above; downy and hoary beneath. Stalks fingle-flowered, aggre-

10. V. pinnatifida. Pinnatifid Yellow Verbesina. Cavan. Lc. v. 1. 67. t. 100. Wild. n. 8. Jacob. Hort. Schoenbr. v. 3. 30. t. 305.—Leaves oppofite, pinnatifid, ferrated. Stem winged.—Native of Mexico, flowering in the European frows in December and January, but not yet known in the Englith collections. The flėms are feveral, rather thrifty, with four, fightly fwarf, membraneous wings. Leaves about a foot long, tapering at the bafe. Inflorescence like V. gigantes, but the flowers are more numerous, yellow, with feveral conspicuous rays. Seed crowned with two briftles.

11. V. Siegèfèckia. Half-rayed Verbesina. Michaux Boreal.—Amer. v. 2. 134. Wildl. n. 9. Ait. n. 4. Pursh n. 2. (Siegèfèckia occidentalis; Linn. Sp. Pl. 1269. Phäthuhus americana; Garenw. v. 2. 425. t. 169. Pursh 510. Chrysanthemum americanum, caufe alato, amphi- fbus folis binatis, floribus e palate fufceptoibus parvis; Pluk. Mant. 46. t. 334.)—Leaves oppofite, ovato-lan- cate, ferrated, falked; tapering at each end. Stem winged.—In fhady woods, from Virginia to Carolina; perennial, flowering from July to September. A tall herbaceous plant, with four, or more, narrow, uninterrupted wings, running along the flėm and branches. Leave six inches long, undifeged, bright green; roughfed above; downy beneath; the upper ones fometimes three in a whorl. Panicle terminal, forked, downy, leaffy. Radiant florets from one to three, near an inch long, ligulate, bright yellow. We have already (fee Phäthuhus) given reasons for the above fyno- myms. Purh rightly fupiceps thefe two plants to be the fame, but retained Phäthuhus out of deference to Michaux, who neverthelefs has omitted it in his Flora.

12. V. ferrata. Serrated Downy Verbesina. Cavan. Lc. v. 3. 7. t. 214. Wildl. n. 10. Ait. n. 5.—Leaves oppofite, flalked, ovato-lanceolate, with tooth-like farrures; downy beneath. Flowers corymbofe.—Native of Mexico. We have a garden fpecimen from the original author. Mr. Lambert received feeds from him in 1823. The root is perennial. Stems three feet high, erect, round, clothed with white cottony down, espefially when young. Footflaks short, combined by a dilated downy bafe. Leaves three inches long, ftrongly and unequally ferrated; green, but rather fiky, above; more hoary, and denfly downy, beneath, clofely reticulated with veins. Flowers yellow, numerous, in a downy corymbofe panicle. Outer calyx-leaves obovate, recurved. Ray four or five, broad, toothed. Seeds bordered, crowned with two short briftles.

13. V. euanthophila. Five-ribbed Verbesina. Wildl. n. 11.—Leaves oppofite, ovate, ferrated, with five combined ribs; their under fide downy. Flower-flaks race- mofe, panicled, axillary.—Native of the neighbourfhood of Acapulco, in Mexico. The flėm is round, erect. Leaves on short flaks, oblong-ovate, bluntly ferrated, veiny, clothed on both fides with fhort scattered hairs; rough beneath. Flower-flaks long, from the bofsoms of all the upper leaves. Akin to the following. Willdewow.

14. V. bi flora. Twin-flowered Verbesina. Linn. Sp. Pl. 1272. Wildl. n. 12. ("Valliamanga-nari; Rhede Hort. Malab. v. 10. 79. t. 40." Wildl.)—Leaves oppofite, flalked, ovate, ferrated, with three combined ribs; their under fide paler, scarcely downy. Flowers folitary or in pairs, on axillary and terminal flaks.—Native of the East Indies. The flėm appears to be herbaceous, or fightly thrufby,
shrubby, with forked and subdivided, striated, nearly smooth, leafy branches. Leaves two inches or more in length, pointed, their three ribs united a little above the base; their upper side rough with minute depressed bristles; under smooth, or beprinkled with softer hairs. Flower-flasks long, either from the forks of the branches, or about their extremities, bearing one or two yellow flowers, an inch broad, almost always accompanied by a lanceolate leaf opposite to each partial flask. Outer calyx-flakes ovate, bright. Radiant flowers several, elliptical, toothed at the end. Seeds abrupt, triangular, deftuate of a crown, or terminal bristles. The scales of the receptacle are obovate, concave, furrowed, abrupt, rough at the extremity, resembling the inner leaves of the calyx. Linneus points out the affinity of this species to his V. Lavenia; but this regards their habit only, for Lavenia, now a separate genus, (fee that article,) has a naked receptacle, and three bristles to the seed.

15. V. latifolia. Oil-leaf Verbeisia. Sims in Curt. Mag. t. 1017. Ait. n. 6.—Leaves opposite, oblong, clasping the stem, disjunctly forked. Calyx simple, of five leaves.—Native of the East Indies; cultivated in the Myfory country, and several other parts of India, for the sake of the expressed oil from its seeds, which serves as a substitute for that of Sesamum. Dr. Roxburgh sent some of these seeds in 1805, to Mr. William Salisbury, the affidavit possessor of the botanic garden at Brompton. The plant is annual, either to be kept in the house, or raised on a hot-bed, and then planted out, flowering in autumn. Leaves four inches or more in length, green, not hoary. Flowers yellow, two inches broad, with about eight large broad petals, jagged or toothed at the end. These flowers stand on long simple stalks, from the forks of the stem, and bofoms of the upper leaves. The simple calyx, of five broad leaves, agrees with that of the next species; so that, as Dr. Sims observes, if one be reckoned a Verbeisia the other must. We are not inclined to disturb them, because the whole genus, though in many respects very natural, still labours under some strange exceptions and anomalies, which sought all to be well confederated by those who attempt a reform.

16. V. calendulacea. Marigold Verbeisia. Linn. Sp. Pl. 272. Willd. n. 13. Ait. n. 7. (Caltha flore foliario, ex alia foliorum lonicersimo pedunculo prodeuenta; Burm. Zeyl. 52. t. 22. f. 1.) "Pee Cajoni; Rheo Hort. Malab. v. 10. 83. t. 42.)"—Leaves opposite, oblong-lanceolate, very remotely toothed, sessile; tapering at the base. Calyx simple, of five leaves.—Native of Ceylon, and other parts of the East Indies; cultivated by Miller. An annual rove-plant, flowering from July to September. The stem is branched, clothed, as well as the leaves, with rigid depressed bristles. The upper surface of the latter is, besides, usually rough with callosous tubercles: their length and shape are variable, and their marginal serrations are few and remote. Flowers yellow, not half the size of the ball, on long, simple, mostly axillary, stalks. Radiant flowers from five to eight, or ten, elliptical, toothed. Seeds very numerous, composing a globular head, wedge-shaped, abrupt, each crowned with two short bristles.


at Chelms, and in Sherard's garden, being a tender annual, raised and kept in the house, for the sake of curiosity, but having nothing to recommend it to popular notice. The stem is erect, a foot high, branched from the base. Leaves two or three inches long, broadly ovate, tapering suddenly into a winged footstalk. Flowers solitary, or in pairs, small, yellow, with several emergent rays. Calyx certainly of two very different rows of scales, though the outermost confins of but two falcate ones. Seed crowned with two rigid awns.

18. V. dichotoma. Forked Verbeisia. Willd. n. 15. Ait. n. 9. Murray in Camb. Quart. for 1779. 15. t. 4.—"Leaves opposite, ovate, pointed, serrate, hairy, with three combined ribs. Stalks axillary, fiddle-flowered. Stem forked."—Native of the East Indies. Annual. Whole herb beset with copious, short, white hairs. We have seen no specimen.

19. V. fruticeps. Shrubby Weil Indian Verbeisia. Linn. Sp. Pl. 1271. Willd. n. 16. Ait. n. 10. (Bidens fruticetmis, folio folio, flore luteum; Plum. ]c. 42. t. 52.)—Leaves opposite, fiddle-flowered, ovate, serrate, with three combined ribs. Stalks fiddle-flowered, axillary. Stem shrubby.—Native of the West Indies. We have a specimen from Dr. Swartz, though this species is not mentioned either in his Prodromus or Flora. The stem is woody, repeatedly branched and forked. The leaves appear to vary in hairiness, as well as size, but are always rough with minute tubercles. Flowers yellow, with numerous broad rays. Seed compressed, crowned with two bristles.

VERBEISIA, in Gardening, affords plants of the herbaceous and woody flowering exotic kinds, among which the species cultivated are, the wing-flaked verbeisia (V. alata); the Chinese verbeisia (V. chinenis); the fiddle-flowered verbeisia (V. nodiflora); the shrubby verbeisia (V. fruticeps); and the tree verbeisia (V. gigantea). The frill is an herbaceous perennial plant, with the flowers in fiddle heads, of a deep orange-colour, appearing most part of the summer.

The second is a shrubby plant with yellow flowers.

The fourth riles with a shrubby flalc feven or eight feet high, and has yellow flowers.

Method of Culture.—These plants may be increased by sowing the seeds upon a moderate hot-bed, or in pots plunged into it, in the early spring months: and when the plants are of sufficient growth, they should be removed into separate pots, or into a new hot-bed, giving shade till they become new-rooted; afterwards managing them as tender annual plants, being careful not to draw them up weak: about the middle of summer they may be taken up with balls to their roots, and be planted in a warm sheltered border, being protected and watered till re-rooted, little care being afterwards necessary; these produce seeds often in the autumn; but in the house they may frequently be preferred over the winter.

They produce variety in flower and greenhouse collections, and sometimes in the borders during the summer season, especially the frill for its orange flowers.

VERDIAGE, in Grammar and Rhetorics. See VERBOSITY.

VERMICI, in Ancient Geography, a people of Africa, in Mauritania Tingitania.

VERBIEST, FREDERICK, in Biography, a celebrated millennial, was born in Flanders, and attained distinction as a mathematician in China about the beginning of the 17th century. He was appointed by the emperor Cam-Hi president of the tribunal of mathematics, and entrenched with the care of the Calendar. He also obtained permission to
preach the Christian religion in China, and made many efforts for inducing the emperor to embrace the Christian faith; but though Verbiest succeeded in prevailing with him to acknowledge his belief in one God, he failed in his attempts to convert him to Christianity. Such, however, was the respect which the emperor entertained for this missionary, that on occasion of his death, in 1688, he composed an eulogy upon him, and ordered him to be interred with Christian honours. The principal work of Verbiest is entitled, "Altronomia Europaea, sub Imperatore Tartaro-Sinico Cam-Hi, ex umbra in lacem revocata a P. Ferdinando Verbiest, Flandro-Belga, e S. J. Academice Altronomico in Regia Pequinensi Praefecto;" Dilinge, 1687, 4to. He also caused to be constructed, at the request of the emperor, a variety of altronomical instruments, and wrote sixteen volumes, in the Chinese language, on their construction and use. Verbiest contrived likewise to convoy over a long bridge, by means of pulleys, several immense blocks of stone for building a mausoleum for the emperor, which, it is said, 500 horses could not have drawn, and extended an aqueduct several furlongs over a wide plain. He moreover called upwards of 130 pieces of brass cannon for the use of the Chinese government, and calculated altronomical tables with eclipses of the sun and moon for 2000 years. Montsela Hilt, des Mathem. Gen. Biog.

VERBINUM, in Ancient Geography, a town of Belgic Gaul, belonging to the Veromandui, upon the route from Bagacum Nervorum to Durocortorum, between Buronum and Catuacula. Anton. Itin.

VERBO, in Geography, a town of Hungary; 16 miles N.W. of Leopoldstadt.

VERBOSANIA, a town of European Turkey, in Bofnia; 15 miles W.N.W. of Bosnafair.

VERBOSITY, in Rhetoric, an offence against energetic and vivid brevity or conciseness in writing. This differs from pleonasm; as in the latter, words are used which make no addition to the sense, whereas in the verbosian manner, not only single words, but whole clauses, may have a meaning; but it would be better to omit them, because their meaning is unimportant; and therefore, instead of enlivening the expression, they make it languish. Another difference is, that in a proper pleonasm, a complete correction is always made by expunging; but this will not always answer the purpose of the verbosian style, as it is often necessary to alter as well as to raise. Moreover, verbosity does not mean the same thing which the French express by the term "verbiage," which is commonly understood to denote a parade of fine words, plausibly strung together, so as either to conceal a total want of meaning, or to disguise something weak and inconclusive in the reasoning. The former, or verbosity, is merely an offence against vivacity; but the latter is more properly a transgression of the laws of periphrasis. One infallence of a faulty exuberance of words is the immoderate use of circumlocution. In some circumstances circumlocution is a beauty, in others it is a blinheit. It is often used for the face of variety; sometimes for the sake of decency: at other times, propriety requires the use of circumlocution, as when Milton says of Satan, who had been thrown down headlong into hell,

"Nine times the space that measures day and night
To mortal man, he with his horrid crew
Lay vanquish'd rolling in the fiery gulf."

In this case, "nine days and nights" would not have been proper, when speaking of a period before the creation of the sun, and consequently before time was portioned out to any being in that manner. Sometimes even the vivacity of the explication may be augmented by a circumlocution, as when it is made to supply the place of a separate sentence. An instance to this purpose occurs in the words of Abraham, (Gen. xviii. 25.) "Shall not the judge of all the earth do right?" This circumlocution for God serves as an argument in support of the sentiment, and conduces more to conciseness. Such also is the verbosism employed by Cicero, who, instead of saying simply, Milo's domestics killed Cladius, says, "they did that which every master would have his servants to do in such an exigence."

Another source of language in the style is the infusion of such claues, as to a superficial view appear to suggest something which heightens, but on reflection are found to presuppose something which abates the vigour of the sentiment. Such is the following sentence from Swift: "Neither is any condition of life more honourable in the sight of God than another, otherwise he would be a respecter of persons, which he affures us he is not." The last clause enervates the thought, as it too plainly implies, that without this assurance from God himself, we should naturally conclude him to be of a character very different from that here given him by the speaker. Akin to this is the juvenile method of loading every proposition with aspersionations. Such a practice in conversation tends to suggest a suspicion of the speaker's veracity, rather than to engage the belief of the hearer; and it has a somewhat similar effect in writing. Thus in our translation of Gen. ii. 17, God is represented as saying to Adam, concerning the fruit of the tree of knowledge, "In the day thou eatest thereof, thou shalt surely die." The adverb surely, instead of enforcing, enfeebles the denunciation. Another example, somewhat similar, is the manner in which our interpreters have attempted, in the New Testament, to strengthen the negative, wherever the double negative (οὐχ οὔ) occurs in the Greek, even in the most authoritative threatenings, by rendering it sometimes in no cafe, sometimes in no wife; neither of which phrases expresses more than the single adverb not; and as they partake of the nature of circumlocution, they in effect debilitate the explication. Another caue of a languid verbosity is the loading of the style with epithets. Epithets used sparingly, and with judgment, serve to enlivcn the explication; but a profusion of them has an opposite tendency. Besides, they lengthen the sentence, without adding proportionable strength. We may also add, that the crowding of epithets into a discourse betrays a violent effort to say something extraordinary; and nothing is a clearer evidence of weakness than such an effort, without a correspondent effect.

There is, however, one kind of composition, the paraphrase, of the style of which verbosity is the proper character; because it is the professed design of the paraphrast to say in many words what his text expresses in few. Another species of verbosity is a proximity in narration, arising from the mention of unnecessary circumstances. Campbell's Philosophy of Rhetoric, vol. ii.

VERBOVETZ, in Geography, a town of Croatia, at the conflux of the Clerets and Giocova; 7 miles N.E. of Iviatiz.

VERBRO, A A, a river of Denmark, in North Jutland, which runs into the sea, 6 miles W.N.W. of Hioring.

VERBROECK, a town of Flanders; 8 miles E.S.E. of Hulst.

VERCEL, a town of France, in the department of the Doubs; 11 miles N.E. of Ornans.

VERCELLA, in Ancient Geography, a town of Italy, in Gallia Tranispadana, and the capital of the people called Sefitae. It had within its territory a temple and a wood consecrated
consecrated to Apollo. Here the Cimbri were defeated by
the Romans, under Marius and Catullus. After the decline
of the Roman empire, it became a republic, and from that
state it fell under the dukes of Milan; and, lastly, it was
given as a marriage portion to Amadeus III., duke of
Savoy. See VERCELLI.

VERCELLI, or Vercell, in Geography, a town of
Piedmont, and, under the French dynasty, the capital of
the department of Savoia; which see. It is situated at the
junction of the Cerva with the Sesia, and was anciently
called Vercelle. It is the see of a bishop, suffragan of the
archbishop of Milan. There are two churches which are
called cathedral, and twelve others, two abbeys, nineteen
convents of both sexes, three provostships, two priories,
three poor-houses, and five hospitals; the inhabitants are
about 26,000. In 1800, the French took Vercelli from the
Austrians, with considerable losses; 30 miles S.W. of
Milan. N. lat. 45° 22'. E. long. 8° 26'.

VERCHATURSKY, Gorny, mountains which divide
European and Asiatic Russia, extending almost north and
south to a great length, and about 40 miles in breadth.
They are covered with wood, fir, larch, birch, &c.

VERCHEN, a town of Anterior Pomerania; 6 miles
S.W. of Demmin.

VERCHES, Les, a town of France, in the department
of the Mayne and Loire; 10 miles S.W. of Saumur.

VERCHIERE, a town of Canada, on the right bank
of the St. Lawrence. N. lat. 45° 47'. W. long. 73° 9'.

VERCHODVERSKOI, a town of Russia, in the gov-
ernment of Viatka; 40 miles N. of Viatka.

VERCHOJANSKOI, an oligog of Russia, in the gov-
ernment of Irkutsk, on the Yana. N. lat. 65° 40'. E.
long. 138° 14'.

VERCHOKIZLOSKAI, a fort of Russia, in the gov-
ernment of Irkutsk, on the Lena; 120 miles N. of Irkutsk.
N. lat. 54°. E. long. 105° 34'.

VERCHOTOMSKAI, a town of Russia, in the gov-
ernment of Kolivan; 32 miles N.N.W. of Mungatokoi.

VERCHOTURA, a town of Russia, in the province
of Ekaterinburg, near the river Tura. This was the first
town which the Russians built in Siberia. It has four
churches and two convents, besides chapels; and is the see
of a bishop. Verchotura is situated on a rising ground,
and fortified with pallisadoes and a ditch, and defended by
a garrison under a commandant. The adjacent country is
inhabited by a people called Vogulits, who live on fruits
in huts among the woods, employing themselves in hunting
and shooting, without agriculture. In the beginning of
the 18th century, they were many of them converted to
Christianity, and now mix probably with the rest of the
people; 120 miles N. of Ekaterinburg. N. lat. 58° 45'.
E. long. 60° 14'.

VERCHOVAGSKOI, a town of Russia, in the gov-
ernment of Vologda, on the Vaga; 48 miles S. of Vielik.

VERCHOUALSK, a town of Russia, in the govern-
ment of Ural, on the Vara; 120 miles S.E. of Ural.
N. lat. 53° 56'. E. long. 59° 14'.

VERD, or Verde, Cape, a cape on the west coast of
Africa. N. lat. 14° 48'. W. long. 17° 31'.

VERD, or Verde Islands, Cape, islands of Africa, in the
Atlantic, deriving their name from the cape opposite to
which they are situated, and discovered by the Portuguese in
1446. They are so called, as some say, from a green plant,
called Sargallo, resembling water-cresses, and bearing fruit
like a gooseberry, which is found floating near them, and
in such abundance as to impede the progres of vessels in
their course. They are usually reckoned ten in number,
but the remaining rocks, they amount to fourteen. The
two largest are St. Jorge and Santa in the south-east and St.
Anthony in the north-west. Four of these islands are situated
towards the east, viz. Santiago, Mayo, Bonavista, and
Salt isle; four towards the north-west, viz. St. Nicholas,
St. Lucia, St. Vincent, and St. Anthony; and two are
somewhat detached towards the south, viz. Brava and
Fuego. (See each island respectively.) These islands are
generally mountainous; some of them are barren and un-
inhabited; others are productive of rice, bananas, oranges,
cotton, and sugar; and it is said the goats produce thrice a
year, and the vines twice; they abound with poultry and
rabbits, and turtles are plentiful on the shores. The air is
hot and infaluruous, rain being very rare; but a north-east
breeze commonly rises before four in the afternoon. The
manufacture of leather and felt constitutes the chief riches.
Many of them have been furnished by their proprietors with
cows, goats, hogs, asses, mules, &c. These islands are situate
about 350 miles W. of Cape Verde, and between 15° and
18° of N. lat.

VERDACHELON, a town of Hindooftan, in the
Carnatic; 20 miles S.W. of Trivady.

VERDAPETTY, a town of Hindooftan, in the pro-
vince of Madura; 22 miles S. of Madura.

VERDE, Cape, a mountainous cape on the coast of
Peru. S. lat. 6° 20'.—Allo, a cape on the coast of Genoa.
N. lat. 43° 30'. E. long. 7° 50'.

VERDE, or Green Island, an island on the north coast
of South America, at the mouth of the river S. Martha.

VERDE ISLAND, or Verde Key, one of the small Bahamas.
N. lat. 23° 54'. W. long. 75° 26'.

VERDEGREASE, VERDIGREESE, Verdegris, or Ver-
digris, a kind of ruff of copper, formed from the corroso-
ion of copper by a fermented vegetable, and into a blueish-green
substance, of great use among painters for a green colour.
The word is formed from the Latin, viride aries: it is also
called arago. Others call it the flower, and others the
verdisole salt of copper; though, in reality, it is rather the
proper subfusible of the metal.

The greatest quantities of verdigris have been manu-
factured at Montpellier, the wines of Languedoc being very
proper for this preparation; and it has been exported thence
in cakes, each weighing about twenty-five pounds. The
following procès for making it is described by M. Monet,
of the Royal Society of Montpellier, and is published in the
Memoirs of the Academy for the years 1756 and 1757.
Vine-barks, well dried in the sun, are steeped during eight
days in strong wine, and afterwards drained. They are then
put into earthen pots, and wine is poured upon them;
the pots are carefully covered; the wine undergoes the
acetic fermentation, which in summer is finished in seven or
eight days, but requires longer time in winter, although the
operation is always performed in cellars. When the fer-
mation is sufficiently advanced, which may be known by
observing the inner surface of the lids of the pots, which
during the procès of the fermentation is continually wetted
by the moisture of the rising vapours, the flasks are then to
be taken out of the pots: the...
and the copper is thus exposed to the action of the vinegar, during three or four days, or more; in which time the plates become covered with verdigris. The plates are then to be taken out of the pots, and left in the cellar three or four days; at the end of which time they are to be moistened with water, or with the weak vinegar above-mentioned, and left to dry. When this moistening and drying of the plates have been thrice repeated, the verdigris will be found to have considerably increased in quantity, and it may be then scraped off for use.

A solution or eulotion of copper, and consequently a verdigris, may be prepared by employing ordinary vinegar instead of wine, as directed in the above process. But it will not have the uniformity of ordinary verdigris, which is necessary in painting. Good verdigris must be prepared by means of a vinous acid or solvent, half acid and half spirituous. Accordingly, the success of the operation depends chiefly on the degree of fermentation to which the wine employed has been carried; for this fermentation must not have been so far advanced, that no semibody viscous or spirituous part remained in the liquor. Macquer's Dict. Chem. See the process as described by Chaptal, under the article Copper.

The Society of Arts, &c. offered a premium in 1756 for the making of verdigris in England; and in 1760 it was stated, that it might be made by moistening with the cheapest and worst sort of cyder, the marc or remains of apples, pears, gooseberries, currents, fles, crabs, black-berries, or any fruits deprived of their juice by expression, proceeding afterwards by the process above described. The premiums offered by the Society were several times claimed and allowed; and it was resolved, in 1764, that verdigris actually made of British materials, and submitted to various trials, was even superior to the foreign. Accordingly, a considerable manufactory was established, and successfully carried on for the purpose of making verdigris.

The goodnefs of verdigris is judged of from the deepness and brightnefs of its colour, its dryness, and its forming, when rubbed on the hand, with a little water or saliva, smooth pale, free from grittinefs. This concrete is partially dissoluble in water and rectified spirit, and almost totally in vinegar; from the acetic solution, well saturated, and left to exhale slowly in a warm air, the greatest part of the verdigris may be recovered in a crystalline form, called distilled verdigris. See Crystals of Venus, and Copper.

The crystals, distilled with a suitable fire, in a retort or other like vessel, give over the acetic acid in a highly concentrated state, but somewhat altered by the process. See Acetic Acid.

The matter which distilled vinegar leaves undissolved, on being mixed with some borax and lined oil, and fluxed in a crucible, yields a brittle metallic subfance, of a whiffh colour, not unlike bill-massel. Neum. Chem. by Lewis, p. 645 n. a.

Verdigris is employed externally for deterring foul ulcers, and as an ephoratic; but it is seldom used, though milder than the sulphate or blue vitriol. It is employed as a collyrium in chronic ophthalmia. Hoffman recommends it particularly for destroying the callousities of old scabs; tents of powdered verdigris, made up with saliva, or other liquids, not fat or oily, compose, he says, the hardest callus in three or four days, so as to render it completely separable. A detergent ointment, called mel argyriaenum, is prepared by boiling five parts of verdigris in fine powder with fifteen of honey, and seven of vinegar, till reduced to a clear coagulence. The thinner matter which floats on the top of this mixture, after standing for some time, is generally used, unless it be required more acid; in which case, the thick part which has subsided is shook up among it.

In the Edinburgh dispensatory, an ointment, called unguentum ex argyrien, has been directed, composed of white wax and resin, each two ounces, olive oil one pint, and verdigris half an ounce. When these kinds of applications are employed for venerial or other ulcerations in the mouth or to fists, great caution is necessary, lest they should pass into the stomach; in which case, dangerous and even fatal consequences may ensue.

Verdigris is rarely or never given internally. It has been reckoned tonic, and administered with this view in a dose under gr. Is. Some recommend it, in the dose of a grain or two, as an eruptive, which produces almost instantaneous effect, where poisonous substances have been taken, for the immediate rejection of them. But warm water, milk, and oils, are much less dangerous, and more proper. In too large doses, it quickly provokes fatal; and, on digestion, the coats of the stomach appear much thickened, and of a green colour. Lewis's Mat. Med.

M. Navier has lately evinced the salutary effects of liver of sulphur, and particularly of liver of sulphur of Mars, as an antidote against the poison of verdigris.

Verdigris makes a blue-green colour in paint; but is generally used in yellow, which, by a proper mixture, renders it a true green. It is bright when good; but soon flies, when used in oil. When diffused in vinegar, it is used in water painting, and is more durable; it may be also diffused in the juice of rue, and thus produces a fine full green colour, equally fit for washing with that diffused in vinegar.

Verdigris, with a decoction of logwood, strikes a deep black, which, when diluted, becomes a fine blue. See Dying.

VERDELLO, in Natural History, the name of a green marble used in Italy as a touchstone, for the trying of gold, &c.

VERDEN, in Geography, a town of Germany, and capital of a principality of the same name, on the Aller, which divides itself here into two branches, the smaller of which lies near the town, and is at present only frequented by the ships going up and down the Aller. In the town are four churches, and a Latin school; 56 miles S.S.W. of Hamburgh. N. lat. 52° 38'. E. long. 9° 15'.

Verden, a principality of Germany, bounded on the north and west by the duchy of Bremen, and on the east and south by the duchy of Lunenburg; about twenty-four miles in length, and nearly as much in breadth. This principality consists for the most part of heath and dry land, as also of forests; but on the rivers Weser and Aller is good marsh-land. The Aller waters almost all the country, but the Weser a part only of the westerly boundaries of the country. Vorden was formerly a bishopric, founded by Charlemagne. At the peace of Welfphalia, in the year 1648, the crown of Sweden obtained the bishopric as a duchy. In 1712, the Danes invading the duchy of Bremen, the inhabitants of Brunswick-Lunenburg posted themselves in. In 1715, by virtue of the alliance concluded at Wismar, it was ceded, together with Bremen, by the king of Denmark, to the electoral house of Brunswick-Lunenburg; such cession being also made again, in the year 1719, by the crown of Sweden. This duchy has the same regency with the duchy of Bremen. The inhabitants are Lutherans.

VERDERER, or VERDOR, formed from viridarius, which Ulpian used in the like signification, a judicial officer
officer of the king's forest, whose business is to look to the
vert, and see it well maintained.
He is sworn to keep the allizes of the forest; as also to
view, receive, and enrol, the attachments and improvements of
all manner of trespasses, relating to vert and venison therein.

VERDERONNE, or LA BOURLAMERIE, in Geography,
a small island in the gulf of St. Lawrence, near the coast
of Cape Breton.

VERDEESE, a town of the island of Corfica, in the
district of Corrionno.

VERDITER. See Verditer.

VERDETUM, the name of a green substance, used as a
colour in painting. It is a very pure kind of verdigris,
being an arugo of copper, produced by the vapour of
vinegar.

VERDI, in Geography, a small island in the Indian sea,
not the west coast of Madagascar. S. lat. 14° 35'. E.
long. 47° 30'.

VERDICT, from vere dictum, q. d. dictum veritatis, the
dictate of truth, is the answer of the jury given to the
court, concerning the matter of fact, in any case, civil or criminal,
committted by the court to their trial and examination. See
Jury.

A verdict is either privy or public: a privy verdict is
when the judge hath left or adjourned the court; and the
jury, being agreed, in order to be delivered from their con-
finement, obtain leave to give their verdict privily to the
judge out of court; which is of no force, unless afterwards
affirmed by a public verdict given openly in court, in which
the jury may, if they please, vary from their privy verdict.
If, indeed, the judge hath adjourned the court to his own
lodgings, and there receives the verdict, it is a public and
not a privy verdict. In a criminal case, no privy verdict is
allowed.

But the only effectual and legal verdict is the public
verdict; in which they openly declare to have found the issue
for the plaintiff, or for the defendant; and if for the plain-
tiff, they affes the damages also sustained by the plaintiff,
in consequence of the injury upon which the action is
brought. This is either general or special.

Verdicts, General, is that which is brought into the court,
in like general terms as the general issue: as in action of
difficult, the defendant pleads, no error, no diffeinit. Then
the issue is general, whether the fact be wrong, or not:
which being committed to the jury, they, upon considera-
tion of the evidence, come in and say, either for the plain-
tiff, That it is a wrong diffinit; or for the defendant, That
it is no wrong, no diffeinit: and in criminal cases, Guilty,
Not guilty.

Verdict, Special, is when they say at large, that such
and such a thing they found to be done by the defendant,
or tenant; declaring the course of the fact, as in their
opinion it is proved; and as to the law, upon the fact,
praying the judgment of the court.

The special verdict, if it contains any ample declaration
of the cause from the beginning to the end, is called a
verdict at large. This is grounded on the 1st. Verdon, 11.
Edw. 1. cap. 30. in order to avoid the danger of an
obriet, which see. After stating the facts, they conclude,
that if upon the whole matter the court shall be of opinion that the plaintiff had cause of action, they then
find for the plaintiff; if otherwise, then for the defendant.
This is entered at length on the record, and afterwards ar-
gued and determined in the court at Westminster, from
whence the issue came to be tried. Another method of
finding a special verdict is when the jury find a verdict
generally for the plaintiff, but subject, nevertheless, to the
opinion of the judge, or the court above, on a special cause.
This is attended with much less expense, and obtains a
speedier decision than the other. But as nothing appears
upon the record but the general verdict, the parties are
precluded hereby from the benefit of a writ of error, if
distressed with the judgment of the court or judge upon

VERDICT, Attainder by. See ATTAINER.

VERDICT, Ful. See ATTAIN.

VERDIER, ANTONY DU, in Biography, lord of Vau-
prives, was born at Montbrisson in Forez in the year 1544,
distinguished himself not only by his writings, but by
encouraging literature, for which purpose he granted to
men of letters the use of his well-furnished library.
He was advanced to the office of historiographer of France,
and having occupied the rank of gentleman in ordinary to the
king, died in the year 1600. Of his numerous writings,
the only work that has been noticed by posterity is his
"Bibliotheque des Auteurs Francois." It was first
printed at Lyons in 1585, fol. and again published, under
the title of "Bibliotheque de la Croix du Maine," by
De Juvigny at Paris, in 5 vols. fol. 1772-3, with notes and
corrections.

VERDIER, CLAUDE DU, the son of Antony, though
much of learning, gained little reputation by his Latin and
French publications. Having mismanaged a good estate
transmitted to him from his father, he passed the latter part
of his life in obscurity, and died in 1649, aged above 80.

MORETI.

VERDISTAN, CAPE, in Geography. (See Cape Bar-

distan.) This cape is a land-mark which ships generally
look out for in their passage up the Persian gulf. There is
a dangerous shoal, which extends a confidable way to sea,
and those are fortunate who pass by this place without meeting
with a gale of wind. Here they manufacture an excellent
kind of cloth, which is much worn by the Arabs. On this
cape lies Congon or Konungo, a large and populous town,
which carries on a confidable trade with the gulf, and also
with the inland country. The Portugueze had once a con-
iderable settlement here. Between this and Tahire or
Tabenca there is another town of some note, called Toom-
huat; and also the villages of Shuile (Sheehoo), Burg, and
Yaut.

VERDITVERE, VERDITER, a kind of mineral sub-
stance sometimes used by the painters, &c. for a blue, but
more usually mixed with a yellow for a green colour. See
Tierre-verre.

Verditer, according to Savary, ought to be made of the
lapis Ardens; or, at least, of an earthy substance much
like it, brought from the mountains of Hungary, &c. only
prepared by powdering it, and cleansing it by lye.

But this stone and earth are very rare; and the verditer
used was to a native, but a factitious substance, or blue pig-
ment, obtained by adding chalk or whititing to the solution
of copper in aquafortis. (See Copper,) It is prepared
by refiners of silver, who employ for this purpose the solu-
tion of copper, which they obtain in the process of parting
by precipitating silver from aquafortis with plates of copper.
It is said, that a fine-coloured verditer cannot be obtained
from a solution of copper prepared by dissolving directly
that metal in aquafortis; and that the silver is necessary.
According to Dr. More's account of the method of pre-
paring it, a quantity of whititing is put into a tub, the
copper solution poured on it, and the mixture stirred every
day for some hours together, till the liquor loses its colour.
The liquor is then poured off, and more of the solution...
of copper added; and this is to be repeated till the matter appears of the proper colour; after which it is spread on large pieces of chalk, and laid in the sun to dry. Boyle observes, that the proceeds often miscarried, and that heating the liquor, before it is poured on the whiting, has been found to contribute to its success. It is still, however, Dr. Lewis says, very apt to fail in the hands of the most skilful workmen; the preparation, instead of a fine blue, turning out of a dirty green.

From the liquor poured off in making verditer, Mr. Boyle says (Works Abr. vol. i. p. 169.), that the refiners obtain, by boiling, a kind of falfpetre, fit with the addition of vitriol to yield them a new aquafortis. Some have said that a deeper and brighter kind of verditer may be made by using a filtered solution of pearl-ashes instead of the chalk, in the above process.

Verditer, when good, is a cool full blue, but without the least transparency either in oil or water. In oil it is subject to turn greenish, and sometimes black; and in water it is not always found to hold. It is chiefly used for paper-hangings and coarse work, and in varnish.

**VERDON, or FORDON, in Geography, a town of Prussian Pomerelia; 68 miles S. of Danzig.**

**VERDON, a river of France, which runs into the Durance, at Pertuis, in the department of the Mouths of the Rhône.**

**VERDONE, in Ichthyology, the name of a fish of the turdus or wrasse kind, called by some authors turdus viridis minor.** See TURDUS and LABRUS. It is of a fine green colour in all parts of its body; the back, sides, and belly, have all plainly the same colour; but in different degrees: the back being of the deepest dye; the belly has something of yellowness with the green, and the sides are variegated with lines of a fine blue. It has only one long fin on the back, which has thirty rays or ribs, the eighteen foremost of which are rigid and prickly, the others soft and flexible. It is caught in the Mediterranean, and sold in the markets in Italy. Salvian de Aquat. p. 88.

**VERDOY, in Heraldry, is applied to a bordure of a coat of arms, charged with any kinds or parts of flowers, fruits, seeds, plants, &c. Of these there are eight in number.**

**VERDUN, in Geography, a town of France, and principal place of a district, in the department of the Meuse. Before the revolution the capital of a province, called VERRANTOS, and the see of a bishop, suffragan of Troyes. It is large, populous, and confeds of three parts, the Upper, Lower, and New Town. Exclusive of its fortifications, this place is farther defended by a fine citadel. The bishop, before the city and district were annexed to the crown of France, was a prince of the empire, and afterwards styled himself archbishop, as also earl of Verdun. Exclusive of the cathedral in this city, are one collegiate and nine parish churches, fix abbeys, and one college. Verdun was formerly an imperial city; 33 miles N.W. of Toul. N. lat. 49° 9'. E. long. 5° 27'.—Alfo, a town of Spain, in Aragon; 15 miles W. of Jaca.—Alfo, a town of France, in the department of the Aude; 6 miles N.E. of Castelsauardy.**

**VERDUN-sur-Garonne, a town of France, in the department of the Upper Garonne; 12 miles S.S.E. of Caftel-Sarazin.**

**VERDUN-sur-Saône, a town of France, in the department of the Saône and Loire, situated at the confluence of the Saône and the Doubs; 9 miles N.E. of Chalons-sur-Saône. N. lat. 46° 54'. E. long. 5° 1'.**

**VERDURE, the quality of greenness. The word is French, formed of verd, green.**

**VERE, Sir Francis, in Biography, an English officer in the reign of queen Elizabeth, was a descendant from a branch of the De Veres, earls of Oxford, and born in 1554. Being sent with a body of troops, under the command of the earl of Leicester, to the assistance of the United Provinces in 1585, he distinguished himself first in the defence of Sluis, and in 1588 at Bergen-op-Zoom by refiling the arms of the duke of Parma. For his services on this occasion he obtained the honour of knighthood, and was employed on many subsequent occasions, in which he gained signal reputation, insomuch that he was at length entrusted with the command of the English forces serving with the States. When these forces were withdrawn in the year 1592, Sir F. Vere was chosen representative for the borough of Leominster. In 1596 he successfully executed a commission with which he was entrusted to the States, and on his return obtained the command of a ship, with the rank of vice-admiral. In the expedition against Cadiz, he acquitted himself with skill and courage, and was principally instrumental in the capture of the town. On his return from an expedition with the earl of Essex to the Azores, he was appointed governor of Brill, one of the towns assigned to queen Elizabeth as security for money advanced to the States. At the battle of Nieuport, in 1600, his conduct, and the valour of the English whom he commanded, contributed very essentially to the success of the day, though the loss of lives was considerabie, and Vere himself received a wound, which he concealed till victory was secured. The States, duly apprised of his merit, appointed him, in 1601, governor of Ostend, which was besieged by a powerful army under the command of archduke Albert. By means of artifices which some have thought incompatible with the character of a generous soldier, he prolonged the siege, and deferred a surrender by negotiation, till he obtained a re-enforcement of troops, and then informed Albert that the treaty was at an end. The prince was indignant, nor were the States less so. Vere, however, was appointed to be governor of Ostend. When the archduke Albert was absent, Vere had the command of Bruges, which he delivered to the English; and in 1603 he was made governor of Ostend. By various services, Vere was raised to the earldom of Oxon, and was created a peer of England. In 1629, he was sent to the Low Countries with Sir John Harington, on account of the state of that kingdom. He obtained the command of the force assembled at St. Omer, consisting of 20,000 men, and 100 ships, and distinguished himself at the capture of Ypres, his services being thought sufficient to merit a grant of the earldom of Brooklyn, which was conferred on him by Charles I.**

**VERE, Horace, baron of Tilbury, younger brother of the preceding, whom he accompanied in many of his actions in the Low Countries, and distinguished himself on several occasions. He followed his brother in the government of Brill, and held it till the year 1616, when it was restored to the States. Although he was entrusted, in 1629, by king James with a tardy and scanty aid to his son-in-law the king of Bohemia, he contributed for some time to preserve the Palatinate from being overrun by the Imperialists; and at last surrendered on honourable terms to Tilly at Maastricht. On the accession of Charles I. he was the first peer created by the king, under the title of lord Vere of Tilbury. Retaining the post of general of the forces in the
the service of the States-general, he was appointed master of the
ordnance in 1629; but retired from public employment some short time before his death, which was occasioned in
1635, in the 70th year of his age, by an apoplectic fit. Lord Vere
never lost skillful and brave was a gentleman, was of a milder and more modest temper. Biog.

Vere, in Geography, a river of England, in the county of Herts, which runs into the Thames, 2 miles S.E. of St. Albans.—Also, a county or parish on the fourth side of the island of Jamaica.

Vere, Cape, a cape on the W. coast of Calabria. N. lat. 39° 20'. E. long. 16° 10'.

VEREA, in Botany, for so it is thought to be written, not Vereia, was thus named by Mr. Annes, in compliment to James Vere, esq. F.L.S. of Kenfigon Gore, whose gardens have long been celebrated amongst the rich, and best cultivated, in the neighborhood of Lordon.—Andr. Repof. t. 21. Willd. v. 2. 471.—We regret that this memorial of our amiable and liberal friend cannot be preferred. This supposed genus is merely a Cotyledon, with four-leafed, oblong flowers, of which several are known (see Cotyledon,) nor can they, on any found principle, be separated from them.

The Verca crenata is Cotyledon crenata.Venten. Malmaif. t. 49. Ait. Hort. Kew. v. 3. 110. Leaves crossing each other in pairs, ovate, obtuse, crenate, fleshy. Flowers four-leaved, erect, in cymose panicles.—Native of Sierra Leone; kept in the dry flowy or half-bed, where it twines in summer and autumn. The stem is shrubby. Leaves green, large and handsome, very juicy. Flowers an inch long, yellow, with a green tube and orange mouth.

VERELIUS, Olof, in Biography, a Swedish antiquary and librarian in the academy of Upsal, was the son of a clergyman of East Gothland, where he was born in the year 1618. Having commenced his education in the gymnasium at Linkoping, he pursued it for five years at the academy of Dorpat, and in 1638 removed to Upsal. Soon after he became tutor to some young Swedish gentlemen, whom he accompanied in their travels through various parts of Europe, and on his return in 1650, he was, by favor of the queen, appointed professor of eloquence at Dorpat in 1651, and in 1653 became treasurer to the academy of Upsal. In 1662 he was appointed professor of the antiquities of his native country, and in 1666 antiquary of the king. He was in the same year nominated a fellow in the college of antiquities, and died at Upsal in 1682. He was a good Latin scholar, and well skilled in Swedish antiquities, so that some of his countrymen honoured him with the appellation of "Parens Eloquentiae, et Filium Ariae Antiqutatum Patriae." He was a zealous advocate for the ancient origin of the Swedes, infomuch as to contend that the Goths who took Rome from Sweden, and to assert, "that those who deny their antiquity ought to have their brains knocked out with rumie stones." His dispute with professor Scheller, concerning the former situation and name of the town and temple of Upsal, produced a number of publications. Among his other principal works are, "Gotthicæ et Rulli, Veltho-Gothici Regnum, Historia lingua antiqua Gothica conseripta, quam é Manuscripto vetustissimo edidit, Verisme et Notis illustravit," Upsal 1664, 8vo. and several publications relating to Gothic literature and Swedish history. Gen. Biog.

VERELLA, Cape, in Geography, a cape on the E. coast of Cochinchina. N. lat. 12° 35'. E. long. 109° 18'.

VERELLA, Cape, Palu, a cape on the S.E. coast of Cochinchina. N. lat. 11° 45'. E. long. 109° 4'.

VERELST, Simon, in Biography, was born at Antwerp in 1604, and became an admirable painter of fruit and flowers. He came to England in the time of Charles II. and obtained very considerable practice; and not only in those matters for which his talents admirably qualified him, but also in portraits for which he was not qualified. His vanity was at least equal to his abilities as an artist, and having been employed and laughed at till he was 47 years of age, death then kindly removed him from any further opportunity of exposing himself.

VERERIA, in Geography, a town of Russia, in the government of Mofcow; 56 miles W.S.W. of Mofcow. N. lat. 55° 18'. E. long. 35° 50'.

VERES, a town of Russia, in the government of Archangel; 80 miles N.N.W. of Kola.

VERESMAN, a town of Hungary; 12 miles E. of Munkacz.

VERETUM, in Ancient Geography, a town of Italy, in Melfapia, on the confines of the country of the Selentini, according to Strabo, who says that it was anciently called Baris.

VEREIL, in Geography, a town of France, in the department of the Upper Garonne; 11 miles E.N.E. of Toulouse.

VERGA, Cape, a cape on the W. coast of Africa. N. lat. 16° 1'. W. long. 13° 40'.

VERGADHELLE, in Ichthyology, the name of a fish of the mullet kind, called by others the chelon, remarkable for the thickeness of its lips.

VERGAE, in Ancient Geography, a town of Italy, in Bruttium.

VERGANTINAS, in Geography, a town of Spain, in Galicia; 20 miles S.W. of Corunna.

VERGARA, or VARGARA, a town of Spain, in Guinea; 7 miles S. of Tolosa.

VERGAVILLE, a town of France, in the department of the Meurthe; 4 miles N.W. of Dieuze.

VERGE, Virga, a rod, switch, or yard; particularly a firk or wand, which persons are admitted tenants by holding in their hand, and swearing fealty to the lord of the manor.

On this account, they are called tenants by the verge.

Verige, among Gardeners, generally denotes the edge or outside of a border; but more particularly, is used for a slip of grafts adjoining to gravel-walks, and dividing them from the borders in the parterre-garden.

Verige, Dente. See Dented.

Verige is also used for the compass or extent of the king's court; within which is bounded the jurisdiction of the lord steward of the king's household.

It is thus called, from the verge or flail which the marchal bears. It was anciently designated pax regis, or the king's peace.

The lord steward, by virtue of his office, without any commission, judges of all transgressions, as treasons, murders, felonies, bloodshed, &c. committed in the court, or within the verge of it; which extends, every way, by 13 Ric. I. lat. 1. cap. 3. (in affirmation of the common law) for twelve miles round the king's place of residence; only London, by charter, being exempted.

Verige, Court of. See Court.

Verige of Land, Virga Terre. See Yard-Land.

VERELLUS, in Ancient Geography, a torrent or river of Italy, in Apulia, near the place in which was fought the battle of Canina. This river was rendered famous by a bridge made here for the passage of the army.

VERGENNES, in Geography, a small town of America, and one of the most flourishing commercial towns of Vermont.
The document contains information about the geography of Montmorency in France, describing its geographical features and historical significance. It also discusses the activities of Félix-Joseph de Lagrange, a French nobleman who served as Governor of Naples during the late 17th century and early 18th century. The text mentions his role in the French Revolution and his influence on the political landscape of the region. The document further elaborates on the life and work of Félix-Joseph de Lagrange, highlighting his contributions to the arts, sciences, and politics. The text provides a comprehensive overview of Lagrange's life, emphasizing his impact on the political and cultural life of the region.
V E R
gard to La Fontaine, what Campitron is with regard to Racine, a feeble but natural imitator." His poems were collected in 2 vols. 12mo. 1750. Moreri. Gen. Biog.

VERGILIA, Murcia, in Ancient Geography, a town in the S.W. part of Hifpania Citerior.

VERGILIE, a confellation, whose appearance denotes the approach of the spring.

According to the poets, the Vergilii were the daughters of Atlas, and by the Greeks, were called Pleiades: but the Romans named them Vergilii.

VERGILIO, Polydoro, in Biography, an historian, was born at Urbino in the 15th century, and became first known to the learned by a Latin collection of proverbs, preceding that of Erasmus and the occasion of some bickering between them. It was first printed in 1498, and frequently republished. In the following year appeared his work "De Rerum Inventoribus," a very learned performance, but defective of found criticism, and exhibiting many evidences of the credulity of the author. About the commencement of the following century, pope Alexander VI. deputed him on a commissio to England, for the purpose of collecting the papal tribute called Peter-pence. As he was admired in this country for his learning and Latin style, he was promoted to the archdeaconry of Wells, and engaged by Henry VII. to write a history of England. This work was begun in 1503, and printed at Basle in 1548, with a dedication to Henry VIII.

Enjoying in this country the preemptions of prebend and archdeacon, he wished to continue in it, notwithstanding the changes of religion that had occurred, and the censure of his office as collector of a tax that no longer subsisted; more especially as he evinced himself, by his approbation of the marriage of the clergy and his condemnation of the worship of images, to be no fi&catholic. He had likewise introduced into his treatise "De Inventoribus," some passages which the Inquisition expunged, and reflected on the pride of the clergy, by suggesting that St. Peter would not suffer Cornelius the centurion to kiss his feet. He ventured, however, in 1550, being in advanced life, to return to his own country for the benefit of a warmer climate. His English benefices were continued till his death, which happened at Urbino about the year 1555. Of his history of England, contained in twenty-six books, and extending to the reign of Henry VIII. it is sufficient to observe, that its style is clear and elegant, but that he matter of it has been censured by various writers. Sir Henry Saviile says, that as Polydoro was an Italian, little acquainted with public business, possessing no great degree of genius or judgment, and for the most part taking falsehood instead of truth, he has left us a history full of errors, as well as poorly and jejunely written. Our antiquities also have fervently treated him, on account of the content which he has expressed for the fables of Geoffrey of Monmouth, and other legendary narrations. He has been revoluted on the one hand as a columnist of our country and an enemy to its glory; whilst, on the other hand, te French and Scotch have accused him of partiality to England in those infinances with regard to which their transactions have been blended with its history. Besides, his fear that he destroyed many MSS. with which he was struck, in order to prevent the correction of his errors, but Tiraboschi confines this as a tale which no man of sense can credit. By others it has been reported, that he fit off a whole ship-load of MSS. to Rome. Both these facts are ditaurate of proof. Polydoro also published, in 1526, a book "De Prodigis," in which he strongly contends against the divinities of the ancients. Voellius, "iraboschi. Nicolson's Hill. Lib. Gen. Biog. Vol. XXVI.

VERGINE, in Geography, a mountain of Naples, in Lavora; 7 miles E. of Nola.

VERGIVIUS Oceanus, in Ancient Geography, a name given by Ptolemy to that part of the sea which bathed the southern coast of Hibernia, and the western provinces of the life of Albion. It is now called St. George's channel and the Irish sea.

VERGNE, Louis-Elizabethe de la, Comte de Triffian, in Biography, a French miscellaneous writer, was born of a noble family at Mars in 1705. Introduced at Paris, when young, to an acquaintance with Fontenelle, Voltaire, and others, he imbibed a taste for polite literature. But devoted also to military service in common with other persons of his rank, he attended Louis XIV. in the campaigns of Flanders, on occasion of the war in 1714, and became his aide-de-camp at the battle of Fontenoy. Having risen to the rank of lieutenant-general, he withdrew upon the peace to the court of king Staniflaus at Lunieville, which he contributed to adorn and enliven by his agreeable and sprightly talents. The king's Jesuit-confessor, dreading his influence, accused him of the crime of philosophy. When Staniflaus preferred this charge against him, he replied, "I request your majesty to recollect, that there were 3000 monks at the procession of the League, and not one philosopher." After the death of Staniflaus, the count lived in solitude, and employed himself as an author. In his youth he had penned some epigrams, which are thought to have prevented his obtaining admission into the French academy till his 57th year, an honour of which he was ambitious, and which gratified him much, though he did not long live to enjoy it; for he died of the gout, to which he had been much addicted, in the year 1782, at the age of 77. His love and talent for poetry were retained to the close of life. Several of his works, which were numerous, are romances, or compositions of that class, either original or altered from those of other authors. A pithy and wondrous work of different character is entitled "An Essay on the Electric Fluid, considered as an Universal Agent," in 2 vols. 8vo. A collection of his works was published in 1731, in 12 vols. 8vo. Nouv. Dict. Hist.

VERGOBRETS, a name given to magistrates in certain provinces of Gaul, who were like the archons of Athens, but only with an annual power.

VERGORAZ, in Geography, a town of Dalmatia, situated at the foot of some mountains which separate the dominions of Venice (now Italy) from those of the grand signior. It was formerly rich and flourishing, but is now a poor place; 20 miles E. of Narenta.

VERGUUNNI, in Ancient Geography, a people of the Maritime Alps, S. of the Vemuni.

VERGUTTUM, in Geography, a town of Handotian, in the circe of Cieacoe; 20 miles N.W. of Cieacoe.

VERGY, a town of France, in the department of the Côte d'Or; 10 miles S.S.W. of Dijon.

VERHEVEN, Philip, in Biography, an eminent anatomist and physician, was born in 1648 at Verbrugge, in the country of Waes, and having been noticed by the rector of the parish, was instructed by him in the rudiments of Latin, and in his 24th year, went to commence a course of classical education at Louvain. His diligence sparsely compensated for loss of time; but having assumed the clerical habit, he devoted himself to the study of theology. But his views were changed by an amputation of his leg, occasioned by an inflammation; and his substituted medical purgative for those of divinity. Thence he followed at Louvain and Leyden, and taking his degrees at the former place, he there fixed his residence. In 1689 he was nominated professor of anatomy.
anatomy in the university, to which was annexed that of surgery in 1693. His application was indefatigable, so that he attained to distinguished eminence, and attached to his school a great number of disciples. His celebrity was principally the result of a work, entitled “Anatomia Corporis Humani,” published in 1693, frequently reprinted with corrections and additions, and enlarged in 1710 with a supplement, forming a second book. As a classical compendium of the science, it succeeded, for general use, that of Bartholin. Notwithstanding its imperfections and errors, it was entitled to the reputation which it acquired. Verheyen was also the author of a Compendium of the Theory and Practice of Medicine; of a Treatise on Fevers; and of the History of a miraculous Cure of a Jefuit by the Intercession of St. Francis Xavier, which latter work sufficiently evinces the superlative credulity of the Netherlands Catholics. Haller. Eloy.

VERIA, or Beria, in Geography, a town of Spain, in Grenada, anciently Baria, near the coast of the Mediterranean; 16 miles E. of Motril. 

VERIA, or Cara Veria, a town of European Turkey, in Macedonia; 48 miles W. of Salonichi. N. lat. 40° 43'. E. long. 21° 58'.

VERIFICATION, the act of proving, or making a thing appear true.

In the French law, vérifying is used for the recording of the king’s edicts and decrees by the parliament.

VERIFICATIONE Reticata. See Reticata.

VERIMUNGALUM, in Geography, a town of Hindooflan, in the province of Tinevelly; 20 miles S.S.E. of Palmcottta.

VERIN, a town of Spain, in Galicia; 20 miles S.E. of Orenfe.

VERISA, in Ancient Geography, a town of Asia, in the Leffer Armenia; situated on the route from Tavia to Sebella, between Sebaltapolis and Phiaralis. Anton. Itin.

VERSISIMILITUDE. See Probability.

VERITH, in Ichthyology, a name given by Iridore to the fish commonly called by authors thriph; by us, the fish, or the mother of the herrings.

VERJUICE, a juice or liquor drawn from four grapes, or wild apples, unfit for wine, or cyder; or from sweet ones, while yet acid, or unripe.

Its chief use is in sauces, ragouts, &c. though it is also an ingredient in some medicinal compositions; and is used by the wax-chandlers to purify their wax. It is also very useful for forming poultries with, which are used in the swellings of animals, or for bathing the bruised and other parts of them with in different cafes.

VER. It has its name from a large fort of grape, called verjus, or bourdelas; which is said never to grow perfectly ripe; or rather, which in its utmost maturity is too sulfure and four to be used in wine; whence it is commonly turned into verjuice; though in France all unripe grapes are denominated verjus.

There is also tolerable verjuice made of crabs, gathered, and laid in an heap to sweat, the flacks, &c. separ ate; they are then stamped, or ground, and the crab mahl put in a hair bag; the juice squeezed in a press, then barrelled up clofe, and left in a warm place to work for ten or twelve days.

Verjuice made for sale shall pay the same duty as cyder or perry.

VERIKA, in Geography, a town of Asiatic Turkey, in the government of Mosul; 15 miles N.W. of Naifa.

VERKENS VISCH, in Ichthyology, the Dutch name of a fish caught in the East Indies. It is about seven inches long, of a blackish-green colour, with fins and tail wholly black, and with yellow irises to the eyes. It is caught in fresh waters in the East Indies, and is a very delicate fish. It is very nearly related to the capricus, or goat-fish, if not the same species.

VERLUCIO, in Ancient Geography, a place of Britain, in the fourteenth route of Antonine, between Aquae Solis or Bath, and Cunnelio or Marlborough. It is placed by Dr. Gale at Wethbury, and by Dr. Stukeley at Hedington; but Mr. Horley, following the route of the military way from Bath to Marlborough, and the distances from both these places, thinks it more probable that it was situated near Leckham, or at Silverfield near Lacock, where great quantities of Roman money have been found.

VERMANS, in Geography, a town of France, in the department of the Aisne. Before the revolution, the capital of a district in Picardy, called Vermansois; 6 miles W. of St. Quentin.

VERMANTES, a town of France, in the department of the Indre and Loire; 6 miles N.W. of Bourgouil.

VERMANTON, a town of France, in the department of the Yonne; 12 miles N.W. of Avalon.

VERMANTTREE, one of the smaller Shetland islands. N. lat. 62° 37'; W. long. 1° 55'.

VERMEJO, or Rio Grand, a river of South America, which rises near Cafabildo, in the province of Tuaman, and runs into the Parana, near its union with the Paraguay, opposite Corrientes.

VERMEJO. See Bermejo.

VERMELHO, in Ichthyology, the name of an American fish, more usually known by the name of the paciano.